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A socio-historical analysis of the American steel industry, 1865-1929: Factory closures in the cycle of capitalist development

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Santoro, Daniel John, Ph.D.

University of New Hampshire, 1988

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**A SOCIO-HISTORICAL ANALYSIS OF THE
AMERICAN STEEL INDUSTRY, 1865-1929:
FACTORY CLOSURES IN THE CYCLE
OF CAPITALIST DEVELOPMENT**

BY

DANIEL J. SANTORO


DISSERTATION

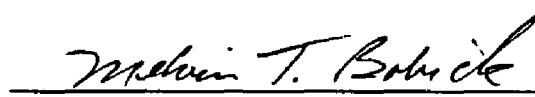
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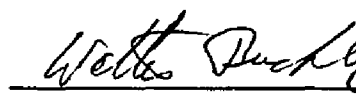
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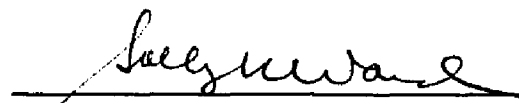
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Daniel J. Santoro

DEDICATION

This work is dedicated to Lisa Baughman, my partner in this life, and to my parents, Rose and Mike Santoro. They each have taught me altruism, the importance of faith in oneself, to stand for something or not to stand at all, and most importantly that love and courage are cut from the same cloth. It is also fondly dedicated to the memory of my Grandfather, Giovanni Batiste Santoro.

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It is cliché that every student of introductory sociology and anthropology learns at one time or another that Eskimos have sixty or so different words describing snow and that English has but one. That, they learn, is because snow is more important in their lives and to their survival than it is to people outside that culture. In the act of writing I have learned that simply capturing thoughts on paper is but one small dimension of a total process which does not and cannot take place in isolation, but within an entire community of cooperating people. Like the first year sociology student I have learned that the words "thank you" are sadly inadequate to express what I would like to those who have stood with me and supported me over these years. Perhaps this is because saying thank you is more important in the life of the writer than it is to people "outside of that culture." I will, though, try in my way to do justice to all of them.

I am grateful to you, Lisa. Besides all the hard work you put in at the computer and in editing, you have had to live with me through all of this and you have tolerated hardships along with my moods and petty fears with strength and dignity. You have given me a great gift and I will always endeavor to make myself worthy of it.

Mom and Dad, your love, faith, and pride in me has never waivered. You have always placed a premium on the value of being an educated person and you have cheerfully made great sacrifices to give me the opportunity to learn. I want you to know that I do not take this

lightly and I have always tried to do the best with what you have given me.

Now, besides these I owe much to my former teachers. Joyce Schmelling I consider to be the teacher who first made me aware of a much larger and complicated world, upon which it is worthy to reflect. Russ Kleinbach showed me that learning and teaching are really the same things, and that scholarship can be activism. Jon Kerner taught me the potential of sociology in addressing irrationality. Your lessons have not been forgotten.

I am also indebted to the members of my dissertation committee, Professors Bud B. Khleif, Melvin Bobick, Walter Buckley, Sally Ward, Richard England, and Allen Kaufman. If the sign of a good teacher is allowing the student the latitude to learn from mistakes, then these are good teachers. I appreciate their friendship, guidance, and passion for the life of the mind. The opportunity to stand among them as a colleague is a great source of pride for me. Special thanks are here owed to Professor Khleif, director of this committee and my mentor. You have taught me what it means to be a scholar, and I appreciate the respect with which you have treated me. My challenge now is to live up to your example.

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I have found a second home in the family of Bill and Toni Hardy, a sanctuary of wonderful chaos provided by their children Katelyn and Ben along with a regiment of parents, aunts, uncles and cousins. Thank you, dear Katelyn, for reminding me that sometimes the most important thing in the world is to play. I love you.

Sincere thanks to Deena Peschke and Angele Cook, unsung heroes of the Department of Sociology and Anthropology; Charlie Bolian, my male role model; and to John Provencher, Scott Clark, Les Sarteles, Sue Robinson, Diane "Sparky" Coleman, Mark Diffenderfer, Tom Sparhawk, Karren Sanborn, Steve and Annette Cosgrove, and Barbara Carson. Also, Millie Bobick's delicious meals made meetings with a particularly ornery committee member more bearable.

Finally, I have reserved a special place to offer my warm thanks to Christy Hammer and Donna Kerner. You have both done so much to

bring not only this work but, indeed, me to life. You have pushed me to clarify my sometimes muddled thoughts and forced me to say what I mean. You have always held my welfare in the highest regard and you have never given me bad advice. You have seen me at my best and at my worst and always you have treated me with patience, hospitality, kindness and compassion.

It is customary in acknowledgements to release the people who have meant so much to the writer of a work from responsibility for content and quality of scholarship. I will do that too, but not before recognizing that it is they who have made this possible.

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ABSTRACT

A SOCIO-HISTORICAL ANALYSIS OF THE AMERICAN STEEL INDUSTRY, 1865-1929: FACTORY CLOSURES IN THE CYCLE OF CAPITALIST DEVELOPMENT

by

Daniel J. Santoro
University of New Hampshire, December, 1988

The case of the development of the American steel industry from 1865-1929 is used in a socio-historical analysis of factory closures in order to critically address the theory of deindustrialization, influential in much current sociological work, developed by writers such as Bluestone and Harrison (1982). The historiography of the steel industry is analyzed in order to examine the role of factory closures in the formation and disformation of the nation's basic capacity to produce by comparing the course of steel industry development from Reconstruction through the first thirty years of the twentieth century to that following the Second World War, especially the development of the industry subsequent to 1970--the so-called "deindustrialization wave." This approach is intended to overcome problems associated with the limited historical scope characteristic of current literature on deindustrialization.

By focusing on the transition from iron to steel production in the domestic context, the Homestead Strike of 1892, the formation of the United States Steel Corporation in 1901, and the rise of steel producing centers like Youngstown, Ohio, and Gary, Indiana, as well as by

analyzing national economic policy, e.g., protectionism, and community case studies, several conclusions are reached. Factory closures are found to have played an important role in both development and dismantling of the domestic steel industry so that the contemporary nature of factory closures is found not to reflect an aberration of an otherwise healthy accumulation process specific to the current era. Since factory closures play essentially the same role in industrialization and deindustrialization, it is suggested that such events are better understood within the process of the reproduction of capitalist society as firms act to re-create the social conditions--i.e., class and market relations--under which capital accumulation is possible. Specifically, factory closures historically enter: (1) the cycle of labor control as events which re-create the conditions under which labor-power is bought and sold, (2) the cycle of capitalist competition as capitalists compete for control over production and markets, and (3) the organization of geographic space in a way which facilitates capital accumulation.

**Sociology is the art of saying old things in new ways
and the science of affirming contradictions.**

--Gonzalez Prada

CHAPTER I

GENERAL INTRODUCTION: SOCIO-HISTORICAL ANALYSIS OF DEINDUSTRIALIZATION AND THE STEEL CASE

The issue and concept of deindustrialization has become important in social science. Within sociology itself, deindustrialization is discussed in a variety of subdisciplinary contexts including sociology of development, industrial sociology, sociology of work, political sociology, and economic sociology. In current sociological discourse, the concept of deindustrialization is applied to explain current trends in the economy and in the workplace since World War II and especially since the 1970s. My work is intended to contribute to the debate over deindustrialization and offer a critical examination and reconsideration of the theory by viewing it against the historical narrative of the domestic steel industry. In general, I assert that when viewed against a wider historical landscape, the concern of sociologists with deindustrialization as it is presently conceived must be re-evaluated--we cannot speak of deindustrialization per se as an historically unique process since its attributes and the events in which it is manifested are characteristic of the process of industrialization as well.

The approach I take in this study is in line with growing interest in the discipline for attention to more historically oriented work in sociology; processes of political-economic development at the systemic level and the relationship between these and processes

played out at the local and organizational levels; and the social problem of deindustrialization with special regard to the dynamics and effects of factory closures. Through sociological analysis of an historical case, that of the rise and decline of the domestic steel industry, the current crisis as it relates to the issue of deindustrialization can be more adequately understood by explicating the relationship between the event of the factory closure and the process of capitalist development.

In this study, I develop a sociological analysis of the history of steel production in the United States which places the process of deindustrialization in socio-historical context. This will be accomplished through the application of social-scientific concepts concerning political-economic development to the analysis of the historiography of steel. In taking a socio-historical approach, I will examine the career of the steel industry in the U.S. covering its inception and growth in the post-Civil War period to its apparent decline and transformation in the post-World War II period. This will entail an analysis of post-World War II developments in the U.S. by setting them against the major eras in the development of the steel industry in America from the end of the Civil War (1865) to about 1929.

The focus of this introduction is to establish a definitional starting point for the ensuing study. Therefore, the remainder of this chapter is devoted to three tasks: to define the work in terms of its historical orientation, to define deindustrialization as a sociological issue, and to sketch the analysis and identify the issues covered in subsequent chapters.

Historical Sociology and the Steel Industry Case

The history of the U.S. economy and that of the steel industry subsequent to 1945, particularly since 1960, has been of special importance to sociologists working in the area of deindustrialization. Schweikart (1984, p. 33) states that concern with this issue has followed the "collapse of the post-WWII economic expansion." The concept of deindustrialization has gained acceptance in sociology in the wake of Bluestone and Harrison's (1982) work, The Deindustrialization of America, and was developed largely in an effort to explain the social importance of the post-war collapse.

In order to understand deindustrialization properly, both as a social issue and as a social scientific theory, the problem must be approached historically. Toward this end, I draw upon relevant conceptual frameworks and information from such areas as sociology, political economy, and history in the analysis of a concrete case--the American steel industry--in order to form generalizations from the specific process of industrial development to wider systemic processes.

The United States steel industry provides an historical case against which the theories of political-economic development, i.e., those concerned with its social, spatial, and temporal aspects, can be tested against historical evidence. This, then, is a work in historical sociology. That is, it is influenced by the social scientific tradition that seeks to "transcend the seeming boundaries between theory, abstractly formulated, and history, concretely recorded" (Harvey 1982, p. xiv). In undertaking a socio-historical analysis, I am concerned with two general realms of comparison. The first of these is the com-

parison of theory to historical information, i.e., the extent to which the explanatory power of concepts holds up to scrutiny in terms of actual developments. Theda Skocpol (1984a, p. 362) describes historical sociology as a forum wherein "history and theoretical ideas [can be brought] to bear on one another." Here, industrialization and deindustrialization, for example in steel, can best be viewed as historically situated processes manifested in concrete actions and living events, like the opening and closing of factories. These actions and events produce patterns which need to be explained in terms of their consequences and roles in the broader processes associated with the reproduction of the social relations of capital accumulation.

The second realm of comparison is that between eras. The basis of a socio-historical analysis is to use what is known of the past to make sense of the present. As a society, we have become concerned with the meaning of current social trends, and social scientists have attached the term deindustrialization to one such trend. My work is an attempt to understand the present in terms of the past in order, among other things, to determine whether or not we have named it correctly. But, my concern here is not merely one of semantics. Rather, since we conceptualize and create terminology with reference to concrete social processes, a crucial task of all social science is the constant re-evaluation of the "fit" between theory and historical experience (cf. Trudgill 1983, pp. 133-134, and Cornforth 1963, pp. 60-62). In using the history of the American steel industry, it must be borne in mind that we choose our cases "so that... the far is seen as near and rather synonymous with the concerns of our own era" (Khleif 1986, p. 219); and that the issues of our own era, e.g., the

deindustrialization of America, are necessarily lenses through which we view the past. The problem of deindustrialization, as it is currently conceptualized in sociology and contemporarily experienced in social life, is the vantage point from which the history of steel industrialization is viewed. In other words, an idea about a particular aspect of current social life is assessed in relation to historical development of material conditions of which it is a part (cf. Cornforth 1963, p. 1). In this way, present social conditions can be more clearly understood.

It has been argued that social scientific disciplines emerged with the need "to come to grips with the roots and unprecedented effects of capitalist commercialization" (Skocpol 1984a, p. 1), both in defense and criticism of capitalist based developments (cf. Wallerstein 1984, pp. 173-74; Anderson 1985, p. 31; and Hudson 1985, p. 35). As a society we continue to face the same problems in different form, and social science continues in efforts to understand the contemporary course of capitalist development and its effects. The attention sociologists give to the problem of deindustrialization is part of this overall concern.

Definition of the Problem and Its Treatment within Sociology

The starting point of this study is to identify the way deindustrialization is conceptualized in contemporary social science. In developing a preliminary definition and point of reference for this study, particular emphasis is placed on the contribution made by Bluestone and Harrison (1982) since their work has exerted the

greatest influence on contemporary sociological treatments of the issue.

Concern with the dynamics and effects of plant closures on communities has intensified within sociology (as it has in other contexts such as government, law, and the labor movement). Schweikart (1984, p. 33) states that, "Until recently...plant closings were accepted along with tornadoes, floods, and other disasters as something to be endured." They were seen as "accidents" or "acts of God" connected with the vagaries of what is otherwise rational economic life. But the increased frequency of plant closures, especially since the 1970s, has prompted the analysis and discussion of a definite trend which social scientists have come to call "deindustrialization." It is the community case study, focusing on effects at the local level, which has made the strongest contribution to taking the discussion of factory closures out of the realm of accidental occurrence. With particular reference to the steel industry, Staughton Lynd's (1982) The Fight against Shutdowns: Youngstown's Steel Mill Closings and Buss and Redburn's (1983) Shutdown at Youngstown: Public Policy for Mass Unemployment stand as the most influential studies. Such works have done much to move us away from the view of plant closings as accidental occurrences connected with the temporary vagaries of an otherwise self-regulating and rational economy by demonstrating that plant closings are the outcomes of decisions made by human actors within organizational structures of corporations and played out on the local level within communities. Along a similar line, Adams (1982, p. 6) discusses plant closures and movement of capital and jobs relating them to a range of decisions made within capitalist

firms where the realities imposed by political and economic structures establish the parameters within which such decisions are made.

Within sociology, deindustrialization is generally defined as a process of redirecting profits and shifting of productive capital. Bluestone and Harrison (1982, p. 6) state that "By deindustrialization is meant a widespread, systematic disinvestment in the nation's basic productive capacity" (emphasis added). It is accompanied by and is part of a general pattern of investment which, according to Castells (1980, p. 182), "tends not only to increase the capital-intensity of the product in question, but also changes the quality of the factor so as to make further investments profitable." Implied in the term deindustrialization, then, is the dislocation of factors of production according to the criteria of profit. This suggests that factory closures need to be examined within the broader context of capitalist development. For example, such actions which in part comprise the process of deindustrialization in the developed centers of the capitalist economy contribute to and reproduce the characteristic conditions of uneven development--the progressive and unequal economic differentiation of regions (Smith 1986, pp. 87-103).

The process of deindustrialization is summarized in the current sociological literature in terms of a variety of behaviors and local events referred to as "capital flight," "runaway shops," "fugitive industry" (McKenzie 1984), and "capital mobility" (Squires 1984). Such terms express the complexity of the phenomenon which covers a range of concrete actions of capitalist firms from lay-offs to actual shutdowns of production facilities in its most obvious and severe form. To such actions social scientists apply a variety of interpretations:

from viewing them as ultimately contributing to industrial development and indicative of a vital economy (cf. McKenzie 1984) to viewing them as destructive of both labor forces whose skills are made superfluous and, ultimately, of communities (cf. Bluestone and Harrison 1982). Within this general range of debate over the issue of deindustrialization,¹ Bluestone and Harrison's work has gained the most attention, and within sociology the most support (di Leonardo 1985, pp. 237-238).

Bluestone and Harrison (1981, pp. 298-300, and 1982, pp. 7-8), whose work integrates major findings of community level research, outline a set of criteria which specifically characterize the deindustrialization process:

1. Redirection of profits where profits earned through the operation of one facility are shifted to another or others within the same multibranch or multiplant operation. Profits are used to subsidize newer facilities, product development, and/or investment in new areas. "Such milking of a profitable plant is especially common among conglomerates, whose managers treat some of their acquisitions as 'cash cows'" (Harrison and Bluestone 1981, p. 299, cf. Bluestone and Harrison 1982, p. 7).

¹ R.D. Norton's (1986, pp. 1-40) extensive review of literature that has emerged on the process of industrial maturity and the industrial policy issue suggests that the deindustrialization question has been covered from a wide variety of perspectives from left, right, and center. All of these, the article suggests, appear to share at least some agreement concerning the "mechanics" of industrialization, and the cycle of growth, and maturity. Where they appear most significantly to differ is upon interpretations and conclusions concerning the impacts or consequences of the process--interpretations which are then incorporated into debates over "industrial policies" and the course of "reindustrialization."

2. In addition to savings in the form of depreciation allowances companies might allow a plant to run down and redirect whatever profits are generated to other plants and endeavors.
3. Productive capacity of a plant can be undermined through the removal of productive capital from one plant to another, usually from an older to a newer facility.
4. Plants may be shut down altogether and land and equipment sold on the open market or useful equipment moved to other operations.
5. A facility may be relocated to a new site in the form of the classic runaway shop. Harrison and Bluestone (1981, p. 300) state that, "some firms do load their equipment onto vans, trucks, or planes and physically relocate substantially the same activity to a new site" and to a new labor force.

These five criteria are types or forms of capital shift and stages in a single process that plants may undergo. The first two stages take place in the "form of finance capital (profits or savings reinvested elsewhere)"; the other three are the actual removal and transfer of physical capital (Harrison and Bluestone 1981, p. 300). What they share in common are consequences; those of the movement of capital and its effect on workers and communities. Jobs move when capital moves, and jobs are created and destroyed when capital is created and destroyed.

Along a similar line, June Nash (1985, p. 151), in developing the theoretical context for her community study of Pittsfield, Massachusetts, offers this definition:

Deindustrialization is the end result of processes that may involve a flight of whole industries to low wage sites within the

country or overseas, transfer of labor intensive production processes with or without conversion of existing facilities to new automated or high-tech industries, buying up smaller plants by conglomerates that milk them for profits and discard them soon after, as well as plant shut-downs.

In the same way that Bluestone and Harrison's work integrated the findings of local level studies, Nash's is exemplary of the influence that works such as the Deindustrialization of America have had on subsequent community studies. While Bluestone and Harrison turned to community studies in developing the concept of deindustrialization, Nash's work demonstrates that deindustrialization has become an important organizing concept in subsequent community studies. Similarly, Newman's (1985, pp. 5-19) discussion of the importance of Bluestone and Harrison's work, especially The Deindustrialization of America, demonstrates its influence in the formation of a deindustrialization perspective in urban and community studies.

Generally, deindustrialization has been defined as a societal-level process both constituted and indicated by certain events among which the plant shutdown and dismantling and physical relocation of capital stand as its most apparent forms. Analyses of the deindustrialization process by social scientists, particularly sociologists, have emphasized the issue of factory closure in one form or another, e.g., in terms of its national, regional, or industrial occurrence or in community case studies.

An historically oriented sociological work can make an important contribution to this disciplinary endeavor, since, within historical sociology, emphasis is placed on the connection between events and social processes in the long term. It is to this effort that the present work is directed. If deindustrialization and

industrialization are unique and historically discernible processes, then they should differ in terms of the meaning of the events which contribute to their construction. It can be shown, however, that the history of the steel industry in the United States, in particular by comparing pre-1945 to post-1945 development, indicates that factory closures play the same role during periods of industrialization as they are assumed to play during the current period of deindustrialization. Events which are currently discussed as indicative of deindustrialization are also indicative of, and were in operation during, the period of national industrial growth. Factories close and operations move for the same reasons and according to the same logic that they did in the pre-World War II era, that is, with respect to issues of labor control, consolidation and formation of markets, and dynamics of capitalist competition. In a word, the definition of deindustrialization offered by Bluestone and Harrison and by such thinkers as June Nash also describes processes characteristic of industrialization.

To summarize: A socio-historical analysis can determine the significance of factory closures in the longer historical term by delineating the relationship between the factory closure as local event and the operation of systemic processes. It will be shown that with respect to the general process of capital accumulation in the domestic context since the end of the Civil War, there is little difference in the tactics of firms vis-à-vis factory closures in the period of industrial formation and the period of its disformation or collapse. It is in this light that the theory of deindustrialization must be reconsidered, and the relationship between capital formation and disformation specified through a comparison of the steel industry in the pre-1945 period of

industrial growth with that of the post-1945 steel industry in the period of its relative decline. This will be a comparison, then, of the steel industry during the time that the United States emerged as a world economic and political power (post-1865) with the steel industry during the period of deterioration of the hegemonic global position of the United States (post-1970).

A Socio-Historical Analysis

One basic assumption of this work is that a full understanding of social problems must rest on analysis of their history. This study is an analysis of the historical role of a social process, defined as deindustrialization by such observers as Bluestone and Harrison--again, a process concretely expressed in definite actions such as factory closures. The American steel industry provides an historical case of the rise and decline of a basic industry within the domestic context. A sociological analysis of the history of this industry using historical accounts of the development of steel in the U.S. since Reconstruction, accounts of its major labor disputes, national economic policy, and case studies of communities enter into the development of a theory taking into account the connection between organizational and class dimensions of deindustrialization.

In carrying out this sociological analysis of the American steel case, the writings of various historians of the steel industry are vital. Of particular importance is the work of William T. Hogan, whose works include Economic History of the Iron and Steel Industry in the United States (1971), a five-volume history of the steel industry in America, and The 1970's: Critical Years for the Steel Industry (1972), a volume

written as a follow-up to the first. In Hogan's six volumes we have what stands as the single most comprehensive and widely cited history of the American steel industry covered along the dimensions of corporate organization, labor relations and unionization, technological developments in steel production, relations with other industries, and market structure and competition. Besides its breadth of historical scope, what stands out about Hogan's work is his integration of sources and his inclusion of lists of factory closings within this general discussion of steel industry development. Hogan's work, however, lacks any significant attempt to discuss the role of dismantled and shut-down factories in this overall development, except to identify them rather uncritically as part of a process which he metaphorically describes as "tree pruning," i.e., destruction of "obsolete" capital and restructuring to make further industrialization possible.

I argue in this dissertation that bringing more recent sociological analyses of the problem and process of deindustrialization into confrontation with such broadly historical and largely narrative works will refine and strengthen the sociological conceptualization of the meaning of factory shutdowns by shifting attention from the issue of industrial development to the more inclusive issue of capitalist development. This can be accomplished through a sociological analysis which compares a period of industrial growth to one of decline, and assesses the role of particular actions, such as factory shutdowns, in each period. In such an analysis industrialization and deindustrialization are important only as moments within a general process of capitalist development.

In such a study, historical writings are treated as the "data" of sociological inquiry, vital in comparing histories at particular points in time. For example, the history of the British steel industry in the face of rising competition from the American steel industry can be compared to the American steel industry in the face of Japanese industrial development. At the same time, sociological writings, such as community studies, are treated as sources of historical material aiding comparison of "varying historiographical interpretations" of broad processes and significant events (Skocpol 1984b, p. 382). Here, case study literature provides accounts of communities living the most significant episodes in the history of steel industry development, such as important strikes or particular shutdowns.

This study, which analyzes the historical importance of factory closures in the development of the steel industry, will proceed as follows:

In the chapter to follow, three issues are addressed. First, I will discuss theoretical and methodological issues beginning with the meaning of historical sociology as a general approach to sociological work and its particular application to this dissertation. Within this approach, two general assumptions are developed concerning the contingent aspects of social structure and the articulation of social processes through time, and the relationship between social structures broadly defined, arising and recreated within particular arenas of human action.

Secondly, I will discuss treatments of the issue of plant shutdowns within the current literature, particularly as they relate to debates arising within sociology, for example: the industrial

restructuring thesis ("creative destruction") versus the deindustrialization thesis (cf. Norton 1986, p. 13, "the destructive side of creative destruction"); and modernization/postindustrialism versus new international division of labor/underdevelopment. In light of such debates, the factory closure can be placed within the context of the process of the reproduction of capitalist society where the firm and its processes are but one arena wherein class relations and conditions of capitalist competition are recreated. The factory closure is therefore viewed as one among a range of actions undertaken by business firms which historically have contributed to the reproduction of capitalism by, among other things, creating surplus labor and releasing capital for reinvestment. In explicating the relationship between the activities of complex organizations and larger structural processes, factory closures are among the "organizational solutions to problems posed in the production and circulation of capital" (Storper and Walker 1982, p. 479). Since the shutdown is an event as historically important to deindustrialization as it is to industrialization, as relevant to growth as to decline, both can be conceptually subsumed under the process of capitalist reproduction.

Thirdly, I will identify and discuss the major stages in the development of the steel industry from its "take-off" during Reconstruction to the Homestead Strike of 1892; the period of trust formation from 1892 to the crucial year of 1901 when the United States Steel Corporation was formed; through its most important period of growth in the first half of the twentieth century to its decline in the domestic context in the post-1945 era; to the so-called deindustrialization wave of the 1970s. Also in chapter 2 I will empha-

size the latter, thereby constructing an account of the post-World War II decline of the American steel industry to which accounts of pre-World War II industrial growth will be compared.

Chapter 3 begins the discussion of the growth of the United States steel industry from the post-Civil War period to 1892. During this period the steel industry emerged in the transformation of iron manufacture. This transition took place against the backdrop of the destruction of iron producing facilities, introduction of new technologies, and labor struggles. In the steel industry, events such as the Homestead Strike are intelligible in terms of craft labor resistance to the process of the subsumption (submission) of labor under the conditions of capitalistic production. The destruction of the iron industry and the shift to steel production is associated with the shift to more capital intensive processes advancing the interests of owners while circumventing and redefining the political interests of workers. As such it is both analogous and relevant to current discussions of deindustrialization as tied to the process of "deskilling" or the process through which craft is destroyed or emptied of content and labor power is converted to mere factor of production (Braverman 1974 pp. 131 and 139). Deindustrialization as general process, or factory closure as particular event, must be viewed historically both as a manifestation or institutional expression of the essential contradiction between wage-labor and capital, and as recreating this contradiction.

Besides its role in inter-class processes, deindustrialization can be viewed as an aspect of intra-class competition. This is the central focus of chapters 4 and 5 which cover the period of monopolization in the steel industry from 1892-1901, the period of trust formation

culminating in the establishment of the United States Steel Corporation, and from 1901 through the first half of the twentieth century dominated by U.S Steel but also witnessing the rise of other monopoly corporate actors such as Jones and Laughlin, Republic Steel, and Bethlehem Steel. This history can illustrate the importance of shut down and dismantled plants during periods of both growth and decline in capitalist competition within several contexts: between individual capitals; across industries; across regions; and across nations.

Currently, sociological discussions of the effect of deindustrialization have focused attention on the socially destructive aspects of factory closures for communities, which are usually discussed as outcomes of the interests of capital against the particular interests of communities. Decisions to shut down or move plants, made according to the accumulation demands of firms, disrupt community life and are made despite the locally situated social problems--the social costs to local communities--that these actions create.

The conclusions drawn by sociologists with regard to the issue of the social costs of deindustrialization come out of a body of studies done from the late 1960s through the 1970s focusing on the wave of deindustrialization of the last decade. The scope of sociological discussion of this issue can be expanded by comparing case studies of communities which experienced the closure of steel mills during the 1970s to communities at different points in the history of steel industry development.

Community level sources will be used to compare impacts of dislocations at different points in time, and impacts of destroying a

steel community to those of creating one. If the destruction of communities is currently discussed in relation to the criteria of accumulation according to which firms act, it must be remembered that the creation of communities in the first place occurred historically with reference to the same criteria.

Summary

This dissertation uses the history of the steel industry in the United States to assess the strength of the concept and theories of deindustrialization. Deindustrialization has been defined within sociology in terms of a range of actions undertaken by capitalist business firms. One such action emphasized in current literature is the factory closure. In this work, I am interested in understanding the historical meaning of factory closures in capitalist development. I argue that sociological theories have placed insufficient emphasis upon the importance of such actions in the formation of industries, emphasizing instead their role in, and taking them to indicate, the decay of industries in the domestic context.

I will demonstrate that factory closures are as definitive of industrialization as they are of deindustrialization, as currently conceptualized, and suggest the need to place the shutdown within the context of the process of the reproduction of capitalist society. In this way, the opening and closing of plants are viewed among a range of actions taken by firms in the local setting through which capitalist social relations and conditions of accumulation are created, recreated, extended, and intensified against, and for the purpose of circumventing the political resistance of workers on the one hand and

competing capitalist interests on the other. The meaning of factory shutdowns, whether occurring in the historical context of the "take-off," growth, maturity, or senility of an industry, remains consistent with the logic of capital accumulation.

CHAPTER II

DEINDUSTRIALIZATION AS AN ISSUE IN STEEL INDUSTRY DEVELOPMENT: HISTORY, DEVELOPMENT OF CAPITALIST FIRMS, AND REPRODUCTION OF CAPITALIST SOCIETY

Introduction

In this dissertation a socio-historical approach which places the factory shutdown in the context of the reproduction process of capitalist society is developed. Rather than viewing shutdowns as part of an industrialization or deindustrialization process, they are more accurately seen within a range of concrete actions taken by capitalist firms which contribute to the creation, re-creation, extension, and intensification of social conditions of accumulation which define capitalist society. In this way, industrialization and deindustrialization, when viewed in the longer historical term, are seen as subprocesses in the more general process of capitalist social development. Industrialization and deindustrialization are terms currently applied to the process of industrial restructuring which is better understood as subsumed under the process of capitalist reproduction, i.e., the social reconstruction of conditions which make capitalist society possible. The most important issue is not the meaning of factory closures in relation to an industrialization or deindustrialization process, i.e., the construction or deconstruction of particular structures of industry, but their meaning in relation to the process through which the most basic social relationships of capitalist society, namely, class and market, are recreated within which industrial structures are in reality contained.

As the historical record of steel industry development in the United States shows, factory closures have been central to both the industrialization process in the domestic context, where national capacity to produce is progressively built, and to the deindustrialization process, where national capacity to produce is progressively dismantled in favor of the export of capital overseas and to other locations. In this chapter, the parameters of this overall research project are established through discussion of theory and the socio-historical method, the deindustrialization debate within sociology, and an historical overview of steel industry development, especially its post-World War II developments as they relate to the issue of deindustrialization. I propose a socio-historical approach which links the dominant relations of capitalist society, namely, class and market, the firm, and the factory closure within the unified process of the reproduction of capitalist society.

The Reproduction of Capitalist Society, the Firm, and the Factory Closure

By reproduction I mean the historical process through which the dominant relationships that distinguish one type of society from all others are re-created through human action. It is in the process of reproduction that societies appear to persist even at the same time that they undergo transformations which maintain them as distinguishable social systems. The reproduction of capitalist society is conditioned by the re-creation of its dominant social relations, namely, class and market which are among what Wolf (1981, p. 47)

would describe as the "salient characteristics" of capitalism as a mode of production.¹

Here, class is understood as a relation between "groups of social agents...defined principally but not exclusively by their place in the production process, i.e., by their place in the economic sphere" (Poulantzas 1974, p. 27). Under capitalism, this relation exists most basically between owners and non-owners of the means of production and therefore between buyers and sellers of labor power. Also, class is understood to be more than merely a structural relation or category of human actors. Class is a process, or as E.P. Thompson (1966, p. 9) argues, "something that happens (and can be shown to have happened)

¹ There is a distinction between the way I am using the term reproduction and the way it is used within that body of literature known as social reproduction theory exemplified by the writings of such thinkers as Bowles and Gintis, Pierre Bourdieu, and Henry Giroux. According to Jay MacLeod (1987, pp. 9-11) the focus of social reproduction theory is on individuals. The concern of social reproduction theory is the process through which class, for example, is reproduced through institutional and ideological processes, e.g., education, to which individuals are subjected. In other words, social reproduction theory is interested in how "the social relationships and attitudes needed to sustain the existing relations of production in a capitalist society" are perpetuated (MacLeod 1987, p. 9). As Abrams (1982, p. 262) states, within this perspective, "the process of identity formation and the process of social reproduction are the same." My work is not opposed to the project of social reproduction theorists, in fact, I believe the two are quite complementary and consistent with one another. I also believe both differ in their emphases. I am interested in the role of the factory closure in the reproduction or recreation of class and market themselves as conditions historically emergent and definitive of capitalism as a social system. I am not so much interested in this work in the transmission of class and market position among individuals intergenerationally, although I also understand that some such cultural or ideological process must take place in order for capitalism to be reproduced in general.

in human relationships." Therefore, as process, class is meaningful historically.

Market is also a relation between groups of social agents divided essentially as buyers and sellers. Specifically, Rothman (1978, p. 22) discusses three types of market situation suggested in Weber's work: the labor market, which divides society into employers and employees; the money market, which separates creditors from debtors; and the commodity market, which distinguishes between buyers and sellers and landlords and tenants. This three-way market differentiation is at the heart of the class system under capitalism and suggests the extent to which market situations are related both to each other and to class. For example, class position can be defined in terms of the relation of individuals to the labor market where buyers and sellers of labor power confront one another and where labor power takes the form of a commodity which is subject, like other commodities, to supply and demand.

An approach through which these essential relations of capitalism can be studied is suggested by Abrams (1982). Abrams (1982, p. 89) argues that historical sociology, as it relates to the analysis of capitalist society, should address the concerns of Marx on the one hand and Weber on the other. Abrams (1982, p. 89) states,

Capitalism...is defined for Weber in terms of distinct economic practices embodying a distinct complex of meaning. Whereas for Marx capitalism is a type of relationship, a particular form of exploitation, for Weber it is a type of practice, a particular way of organizing and giving meaning to action, a way expressed most clearly [but not solely] in the firm or enterprise.

While neither Marx nor Weber neglected the question of the relation between structure and action, both exhibited a tendency to emphasize

one over the other. Therefore, Marx tended to define capitalism in terms of the structural relationships which characterize it a mode of production. Weber tended to emphasize the firm as an arena of social practice defining capitalism in terms of the organizational context of economic action, for example, discussing bureaucracy as an ideal type and de-emphasizing its relation to the political-economic context in which modern industrial bureaucracies arose. In this dissertation, it is my intention to address these complementary concerns of Marx and Weber by using the history of factory closures in the steel industry in order to explicate the mutually contingent relationship between structure and action.

In this work, then, the relationship between capitalism as social system and firm as mode of organization, is treated neither as one where the operation of societal level processes "derive implications for micro levels of social organization" nor as one where micro level relations serve merely as the bases upon which "societal...level consequences can be derived" (Baron and Blalby 1980, p. 747). Rather, the relationship between capitalism and the firm is treated as a dialectical one where the present course of capitalist development, itself the outcome of past action, constrains and enables organizational action and where the activities of firms--e.g., the opening and closing of factories--re-create the conditions under which capital accumulation is possible. In other words, it is through specific actions within the organizational context of the firm that the essential relations of class and market are reproduced. Therefore, capitalism is understood as a type of society characterized by certain structural relations, and the firm as an arena of action where those relations are actually practiced.

In this scheme, the factory closure is an example of a particular kind of corporate action which can be examined in the broader context of capitalist development and in which the relationship between the development of firms and the reproduction of capitalist society can be observed. According to Abrams (1982, p. 192), "through the strike and the war [as events] we perceive classes and nations." The same is true of the factory shutdown through which we perceive the ongoing creation of capitalist society.

The factory closure, as a type of event, will be studied historically so that its relationship to the process of capitalist development can be analyzed. By doing this, the tendency in current social scientific literature to emphasize the importance of such events only with specific regard to the theoretically formulated process of deindustrialization can be re-evaluated. The factory shutdown may be understood as an event as historically important to the process of deindustrialization as it is to industrialization, as important to the current stage of industrial decline as to the period of industrial growth in the domestic context. In this analysis, industrialization and deindustrialization are viewed as important only as moments within a general process of capitalist development and not as unique historical stages of development themselves. Both are related to each other as complementary aspects of the process of capitalist reproduction.

My basic approach will be to analyze the history of factory closures in the American steel industry in relation to three aspects of capitalist development--interclass processes, intraclass processes, and processes concerned with the spatial development of capitalism. First, the role of the destruction of iron-making facilities in the

formation of the steel industry in the transition from iron production to steel production in the United States will be examined. The relationship between the destruction of the iron industry and the destruction of craft-based labor, which brought with it the intensified subjection of labor to the conditions of capitalistic production, will be emphasized in the discussion of the historical role of the factory closure in the cycle of labor control. In the history of the steel industry, this culminated in the events surrounding the Homestead Strike of 1892.

Secondly, the role of the factory closure in the process of trust formation and monopolization in the steel industry will be discussed emphasizing steel industry development up to and subsequent to the formation of the United States Steel Corporation in 1901. In this, I will also discuss the place of the factory closure within the cycle of capitalist competition over horizontal, vertical, and spatial control of production and markets across intra- and inter-national regional contexts--for example, in such things as the purchase of factories of competitors by others in order to shut them down and the dismantling of the Welsh tin plate industry and the removal of its facilities to the United States.

Finally, I will discuss the historical role of the factory closure in the geographic development of capitalism, i.e., in the creation of the "space economy" of capitalism which is the process through which class and market come to be embodied in the creation and organization of space in a manner consistent with the imperatives of capital accumulation (Harvey 1982 and Smith 1986, p. 87). Especially important here will be the factory closure and its relation to processes

of urban and regional development in the rise of manufacturing cities like Youngstown, Ohio, and Gary, Indiana, and with them the rise of the manufacturing belt. This will provide an historical basis of comparison to current discussions in the deindustrialization literature which emphasize the role of the factory closure in contemporary decline of "traditional" manufacturing cities and regions of the United States.

This approach will be presented in more detail in this and later chapters. Overall, factory closures can be located within a general process of investment and disinvestment, "mechanically" similar to that described currently as constituting deindustrialization. This process was as vital to the building of the nation's basic capacity to produce and to the rise of its industrial heartland at the turn of the century as to its dismantling in the contemporary period. This suggests that factory closures are better understood in the process of capitalist development in general, that is, in the process through which capitalist social relations are re-created. By comparing the historical role of the plant shutdown in the process of monopolization to its role in the contemporary process of conglomeration, the claim--made by certain proponents of deindustrialization theory--that the nature of factory closures in the process of deindustrialization is unique to current domestic economic and social development can be called into question.

Historical Sociology, Industrial Development,
and the Production of Capitalist Society

Historical sociology is an approach wherein sociological theories are understood as explanations of historical information, and wherein theories and concepts are continually assessed and reassessed in light of such information. I argue that since historical sociology addresses the issues of social structure, process, and event as well as the relationship between these, a socio-historical approach lends itself to analysis of the meaning and significance of factory closures which are concrete events taken within current sociological discourse to constitute the process of deindustrialization.

Two Theories of Economic and Social Development: Sociology
and the Meaning of Factory Closures in the Process of "Creative
Destruction"

The necessity of a socio-historical approach to the issue of factory closures is suggested by the tendency in current writings to explain such events primarily within the context of post-World War II, and especially post-1970 developments alone, wherein either of two opposing theoretical perspectives are typically applied. The first may be called the industrialization or modernization thesis in which developments in American capitalism are interpreted as part of a process of what Schumpeter (1942, p. 23) has termed "creative destruction" where old forms of capital accumulation and organization are destroyed in the course of competition in order to create new ones. The second, influenced largely by Bluestone and Harrison's (1982) work, may be called the deindustrialization thesis, which is a critique of neoclassical economic theory and which asserts that factory closures and their impacts indicate the "destructive side of creative

destruction." Di Leonardo (1985, p. 242) argues that both views exhibit organization around biological metaphors. Of these two metaphors in current use, the first is structural functionalist in orientation, where "economies are envisioned as healthy or ill bodies" (di Leonardo 1985, p. 242). The other is a Social Darwinian metaphor which views "economies as competitors in a harsh environment" (di Leonardo 1985, p. 242). Although both metaphors transcend political orientations of particular writers, the first appears more characteristic of the outlook of adherents to the deindustrialization thesis. It is problematic to the extent that the imagery of the "destructive side of creative destruction" portrays factory closures as symptomatic, dysfunctional, and anomalous aspects of otherwise normal processes of social and economic development. The Social Darwinist/evolutionist view of factory closures seems more characteristic of the neoclassical-inspired orientation. It is problematic to the extent that it asserts the inevitability of progress rooted in the implicit rationality of market forces as definitive of capitalist society (cf. Stein² 1980, p. 9; and Brown 1986, p. 50) where shutdowns are explained in the language of neoclassical economics--as part of the process of growth, progress, and modernization and therefore as ultimately beneficial to society.³

² On the nature of the capitalist market system, Stein (1980, p. 9) states, "We have a system that for two hundred years picked winners successfully. That system is the free market, the free enterprise system in which people bet their own money on who the winners are going to be."

³ See also Arnold and Goulet (1982, pp. 37-63) on the three basic institutions of American society and their supporting myths--capitalism and the myth of social mobility, technology and the myth of progress, and national security and the myth of national interest.

Factories are shut down or capital relocated in the process of industrial restructuring as firms in competition with one another undergo changes directed at making them "tougher"--more competitive or profitable, for example--by adopting new technologies or shifting investments into growth areas.

The creative destruction thesis was influenced by the economic theory of Joseph Schumpeter (1942, p. 23), to whom the United States steel industry was exemplary:

The opening up of new markets, foreign or domestic, the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation--if I may use the biological term--that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in.

In sociology, this view finds expression in modernization theory which is also known by other names, such as diffusionism, developmentalism, and equilibrium theory, among others. Economically, modernization theory is neoclassical in orientation. Hechter (1975, p. 29) states in his description of diffusionism that:

Neo-classical economic theory holds that the expansion of efficient capital, labor, and commodity markets into regions dominated by traditionally oriented groups should decrease regional economic inequalities in the society as a whole. Once the peripheral region is brought into the national network of commercial flows and transactions, inequality might temporarily increase; but in time an equilibrium will be reached and economic integration will be substantially achieved.

For this reason, Hechter describes diffusionism as an "osmotic model" of economic growth, that is, a model that argues the equalization of economic resources between regions, where benefits "flow" from an

area of "high concentration" to one of "low concentration" until both are brought into balance.

In this view, backwardness or modernity of particular regions are perceived as historically intrinsic conditions. Thus, the description of an area (or industry) as "backward" or "modern" is dependent on its own historical performance with regard to developmental processes. In sociology, culture is viewed as having an influence on whether or not societies develop, i.e., to the extent that they are governed by "traditional" or "modern" values. "Stagnated" areas are seen as eventually able to enhance their developmental position as cultural and material "benefits" accrue to them from the developmental processes of more advanced areas.

Benefits from developed regions reach more backward regions because developed areas undergo a twofold process conducive to this "trickle down" effect. First, developed areas become more service oriented. Secondly, these areas face higher labor costs. Because of this, producers are motivated to move to more "profitable" areas. Thus, as an old industry moves out, it aids the development of backward areas and "makes room" for the further development of the service or more advanced industrial economy. The major assertion of this model, then, is that in the course of economic and social development, there is a tendency toward equalization, i.e., equilibrium between geographic regions. In other words, since the system tends toward equilibrium, "present problems...are not necessarily the harbingers of an alarming state of crisis. Rather, they are only a reaffirmation of a self-regulating market mechanism" (Watkins and Perry 1977, p. 20 and cf. Amin 1976 on center and periphery).

According to this view, disparities between industries and regions will inevitably smooth themselves out.

Temporally, modernization theorists view societies as undergoing a generally linear course of upward development where they pass through stages ranging from traditional societies through various degrees of modernity. For example, W.W. Rostow (1964, pp. 4-11) identifies these stages as: traditional society, takeoff, maturity, followed by a period of high mass consumption. In incorporating Daniel Bell's work into the modernization scheme, a fifth stage of national development can be added, that of post-industrial society. In Bell's (1973, p. 127) view,

A post-industrial society is based on services....If an industrial society is defined by the quantity of goods as marking a standard of living, the post-industrial society is defined by the quality of life as measured by services and amenities...which are deemed desirable and possible for everyone.

Furthermore, Bell conceptualizes the passage to post-industrial society as originating in the advances made in the stage of high mass consumption. He again states (1973, pp. 127-128):

In the very development of industry there is a necessary expansion of transportation and public utilities as auxiliary services in the movement of goods and the increasing use of energy, and an increase in the nonmanufacturing but still blue-collar force. [Also] in the mass consumption of goods and the growth of populations there is an increase in distribution... and finance, real estate, and insurance, the traditional centers of white-collar employment.

The major transformation in the coming of post-industrial society is the shift from the struggle between capitalist and worker to "the clash between the professional and the populace" (1973, p. 129, and also 1978, pp. 147-148). Thus in Bell's model there is not only

the development of the post-industrial society but the development toward a post-capitalist society, a shift from the basic relations between capital and labor "in the locus of the factory" to those between professionals and clients "in the organization and community" (Bell 1973, p. 129).⁴ This change is supposed to occur as the "technical demands" of post-industrial society make "meritocratic sources of intergenerational status persistence" (e.g., class) obsolete (Baron and Bielby 1980, p.743). With reference to Bell's work, Richard Louv (1983, pp. xvii-xviii) in America I describes the difference between industrial and post-industrial society and the passage from one to the other.

America I is made up of all those steel workers and middle managers so bewildered by a society that, more each day, does not seem to need them....America I is all those people left behind, outside the gates.... America II is almost adolescent in its headstrong exuberance. It sees the nation transforming into something new and fresh; it perceives the future as a technological frontier to be conquered and won.

In general, modernization theory views the factory closure within the process of "creative destruction" and development toward the post-industrial society which occurs as outmoded industries are shifted out of regions and replaced by "higher" forms of economic activity more consistent with the rise of a service-oriented rather than production-oriented society. For example, Jusenius and Ledebur (1984, pp. 83 and 87) comment that the losses of industrial firms in

⁴ This appears consistent with Parson's suggestion that "capitalism is no longer an appropriate name for the advanced western economies which should instead be identified as 'bureaucratic industrialism'..." (Abrams 1982, p. 116). Like Bell's theory of the coming of post-industrial society, Parsons views history in terms of a unidirectional evolution toward modernity (Abrams 1982, pp. 112-113).

New England and the rise of nonindustrial businesses in the region "may be indicative of a movement of the New England economy toward the long-anticipated 'post-industrial' economy...toward the provision of services and financial and information expertise." If this is the case, then the benefits which they assume to attribute to such development lead them to conclude that outmigration of blue-collar workers "may be a desirable adjustment for the region" (Jusenius and Ledebur 1984, p. 117).

McKenzie (1984b, p. 3), the leading proponent of this view as it relates to factory closures, argues the "case for plant closings."

There is a movement afoot that seeks to destroy one of the last remaining vestiges of the free-enterprise system in the United States: the right of the firm to close up shop. Make no mistake about it--this movement is well financed, dug in, broadening its political support at the federal and state levels, and (especially when there is a rash of large plant closings) attracting more and more media attention.

McKenzie and others assert that business should not be restricted in its decisions to locate, re-locate, or close down. Businesses locate their plants to minimize production costs, and since this is the mark of a dynamic economy deindustrialization is considered a "nonexistent trend" (McKenzie 1984c, p. 11 and Bailey 1982, pp. 445-451).

"Economic conditions in any dynamic economy are constantly changing, and businesses must be allowed the flexibility to fit their location to these conditions" (McKenzie 1984b, p. 8).

While factory closures may bring with them temporary crises for workforces or localities (nations, regions, or communities), especially in the form of unemployment and other "adjustment costs," these are seen as the necessary costs of growth and development, creating

problems no worse than those associated with other forms of dislocation (Littman and Lee 1984, p. 128). Ultimately, capital mobility is a process of industrial redistribution which resolves imbalances between regions and industries (Hekman and Strong 1984, pp. 65-66).

Destruction of old forms and facilities of production in the end gives way to more profitable, efficient economic structures and practices, the benefits of which gradually spread to all segments of society.

Problems are held to arise only when there is interference in this so-called "natural evolutionary" process, for example, when so-called "industrial policies" maintain outmoded practices beyond their "lifespans" and block the process of disinvestment from the obsolete to the modern (Thurow 1980, p. 77).

On the other hand, the deindustrialization thesis interprets recent developments in American capitalism as the "destructive side of creative destruction," exemplified most obviously by a wave of factory closures in the 1970s (Norton 1986, p. 13). Bluestone and Harrison (1982), leading proponents of this view, argue from a critical standpoint and explain factory shutdowns as part of the process of decline, underdevelopment, and stagnation in the nation's basic capacity to produce. The costs of this are ultimately borne by society--by workers and communities who, among other things, face unemployment and underemployment, loss of income, loss of tax revenue, and a range of family, personal, emotional, and health problems.

The nature of changes in direction of economic development in the post-World War II period and the extent of problems associated with them have directed a great deal of attention in sociology to the issue of factory closures, especially since the 1970s. Of special

concern to social scientists working in this area has been the case of factory closures in the United States steel industry. Among community-based studies of factory closures, Lynd's (1982) and Buss and Redburn's (1983) works on steel mill closings in Youngstown, Ohio, have been the most influential.

In 1977 Lykes Corporation, which owned Youngstown Sheet and Tube Corporation as a subsidiary company, announced that it would close the Campbell Works and that 4,100 workers would be permanently laid off. In 1978 Jones and Laughlin took over the Campbell works, still closed, along with the Brier Hill Works, previously owned by Youngstown Sheet and Tube. In 1980 Jones and Laughlins closed Brier Hill and 1,400 workers lost jobs. In that same year United States Steel Corporation closed its MacDonald and Youngstown Works, leaving 3,500 workers unemployed (Buss and Redburn 1983, p. 23).

Lynd, historian and labor lawyer who worked closely with the "Save Our Valley" Committee, set out to document the political dynamics between union, community, and corporation and the resistance of workers and other local interests to the unilateral decisions of corporations to close factories with the purpose of offering policy suggestions advocating "brownfield" reindustrialization (see also Lynd 1981, pp. 33-36).⁵ Buss and Redburn also examine the political dynamics surrounding shutdowns, but lay special emphasis upon the effects of social stresses on communities experiencing factory closures, including physical, emotional, and financial strains which work-

⁵ Brownfield reindustrialization refers to a policy of reinvestment in existing plants or "traditional" industrial regions.

ers and families undergo as a result of termination and "the 'ripple effect' of massive job and income losses throughout the community's economy" (Buss and Redburn 1983, p. 7). The ultimate purpose of their work is to suggest changes in human services policy dealing with mass unemployment (Buss and Redburn 1983, pp. 149-159).

The influence of studies of Youngstown has been such that the experience of this community has come to be considered the quintessential case for the analysis of the dynamics and impact of factory closings. On the significance of Youngstown, John Logue (1985, p. 75) has written:

Youngstown is a microcosm of the problems of the aging industrial towns of the Northeast: the predatory conglomerate, systematic disinvestment, the flight south, the trained labor force suddenly unemployed, the collapse of the community tax base, and the obsolescence of the rusting mills that once employed thousands.

Similarly, Bensman and Lynch (1987, p. 7), in their study of factory closures in the Chicago area describe Southeast Chicago as a "microcosm of America's industrial decline." Community studies are valuable as rather local "snapshots" of deindustrialization, freezing a moment in the larger social process that reveals much that is important concerning the events subsequent to the shutdown of a plant. They also point to the seriousness of the issue by documenting the problem as a problem. For instance, Buss and Redburn's work on what they consider the "Ruhr Valley of America" is intended to expand the "research base" for beliefs about the impacts and "public policies to address these directly" (1983, pp. 5-6). However, while these kinds of community studies are important sources of historical and sociological information, it is important to recognize (without devaluing their

contribution) that with their emphasis on the microcosmic, they have a tendency to treat shutdowns as isolated events. So, they carry with them limitation of scope both spatially and temporally. The reason such studies tend toward limitations like these may be attributed to the fact that "the impacts of closings are concentrated regionally and often reinforced by the relative lack of new offsetting economic opportunity" (Buss and Redburn 1983, p. 4). However, it is necessary to recognize that despite regional concentration of effects, even when manifested in particular shutdowns, deindustrialization involves more than locally situated processes. Also, while the effects of plant closures may be regionally concentrated, the factory closure as a problem is not historically limited but is characteristic of every period of industrial development. The use of the term "microcosm" by Logue and Bensman and Lynch is significant. It is indicative of a much larger though unspecified historical context. It tells us something important about the character of the community case study. Buss and Redburn's and Lynd's studies are "local histories" (i.e., localized histories). This is consistent with Moore's (1987, p. 727) description of fieldwork as the creation of "current history" and ethnography as historical writing, "a primary source in the making." Their major contribution has been in the analysis and identification of the direct effects of factory closures, the political dynamics surrounding these local events, and, especially, their social costs to local communities, including the documentation of increased stress levels and associated medical and emotional problems among individuals at the same time that communities lose the resources to handle them.

In essence, both approaches view plant closings as part of a process of industrial restructuring and the movements of firms into more profitable areas and industries. Also, Bluestone and Harrison (1982, p. 15) describe the current problem of deindustrialization as unique to the post-World War II period, and although asserting a position which is critical of the neoclassical view and influential in leftist academic discourse, they describe deindustrialization as an aberration of the otherwise "normal and often healthy disinvestment process."⁶ For them, the problem is not deindustrialization or factory closure per se, but one of scale where conditions of post-war expansion created "a torrent of capital flight" so that the disinvestment process, especially of the 1970s, has been decidedly unhealthy (Bluestone and Harrison 1982, p. 15). The modernization and deindustrialization views differ, however, in their interpretations of the impacts of this process as either part of the "natural," upward evolutionary development of the capitalist economy or as deindustrialization, i.e., "industrial devolution" (Peet 1987a, p. 29). The terms 'industrialization' and 'deindustrialization,' and related terms currently in use in the literature--like 'capital flight,' 'disinvestment,' 'reindustrialization,'

⁶ Along a similar line, Alfred Slote (1969) in his Termination: The Closing at Baker Plant, presents a case study wherein the socially destructive aspects of plant closings upon workers and communities are illuminated. Quoting Sidney Cobb, who describes the plant closing as a "genuine social emergency" which means "pain, humiliation, and despair" for those affected, it is also admitted that "Change is necessary for progress. And it is imperative that we not adopt laws and regulations which would seriously inhibit change and progress" (Slote 1969, p. 331). The implication here is also that the accumulation process is normally healthy, and plant closings constitute an emergency or an aberration.

'modernization,' 'industrial devolution,' or 'coming of post-industrial society'--all variously describe the connotations, either beneficial or destructive, of the process of industrial restructuring within which factory closures are taken to play a part.

While the debate over deindustrialization and the meaning of factory closures is an essential starting point of this socio-historical analysis, my purpose is not to defend either the modernization or deindustrialization thesis over the other. In fact, I assert that the historical example of the American steel industry since the close of the Civil War can show that factory closures are as easily situated in the process of industrial growth in the national context as they can be in the decline of an industry or the industrial capacity of a region or nation. Historically, factory closures have been part of the process through which nations develop a basic capacity to produce as well as part of the process through which such capacity is dismantled. If this is the case, then current explanations of factory closures must be reassessed since it would seem to indicate that the real issue is not the building or dismantling of capacity to produce but the role that factory closures play in the creation and re-creation of the basic social relationships of capitalist society, regardless of whether or not such events occur within the context of industrialization or deindustrialization. Therefore, the issue is not the place of factory closures in the development of industrial structure; more importantly, the issue is the relationship between such events and the historical development of capitalist society.

Rather than viewing factory closures as 'industrialization' or 'de-industrialization' and treating them in a wider historical framework,

they can be explained in a way which links the firm, as one constituent organization of capitalist society, and its actions in local situations, e.g., plant shutdowns, to the reproduction of capitalist systemic relations. Factory closures must be explained in the context of the relationship between the capitalist mode of production and the capitalist firm, that is, within the context of capitalism as a system of social relations defined in terms of class and market and capitalism as social practice, or the confrontation between social actors in an organizational setting where systemically defined relations are played out. Here, the firm stands as one social arena where the confrontation between social actors produces or reproduces, in spite of or against resistance, the essential relations of class and market. Viewed in this light, the factory closure is a specific action taken by particular representatives of capital, whose interests are defined in terms of a particular firm, against other representatives of capital and against labor forces. The firm as organization and the factory closure as specific action are analyzed historically vis-à-vis the determination of power at the most inclusive social level (cf. Bottomore 1979, p. 7).⁷ This is consistent with the overall project of historical sociology, which addresses the process through which social structures are humanly created, the conditioning of action by structure, and structure by human action

⁷ Abrams (1982, p. 36) states: "each mode of production [e.g., capitalism] is also a specific mode of power. And in turn each mode of power is a defining context for action, a definite way the past imposes itself on the present." Thus, capitalism, as a mode of power, conditions action. Actions in turn hold consequences for the mode of power, i.e., its persistence, abolition, or transformation. Factory closures are held in this study to enter into this dynamic as particular actions situated in the cycle of capitalist reproduction.

(Callinicos 1988, p. 1; Abrams 1982, p. 200; and Giddens 1977, p. 14, and 1979, p. 69-73).⁸

The development of this view of the historical role of factory closures will include an historical overview of steel industry development in the United States. And, in this chapter, the development of the industry since the end of World War II as it relates to the issue of deindustrialization is emphasized. Throughout this work, factory closures will be treated as local events undertaken by firms whose activities are vital in the extension of administrative control over workforces, resources, productive activities, and geographical space. Such practices are intelligible within the general capital accumulation process and operate in the extension and intensification of competition between capitals, i.e., firms, and the progressive subsumption of labor under the conditions of capitalistic production as labor increasingly has imposed upon it the appearance of mere factor of production (Marx 1863-1866/1977, p. 1020).

⁸ Such an approach is also consistent, I believe, with a view of history which emphasizes the central place of class struggle in social change. There are of course, other theories of social change not concerned with class struggle. For example, the cyclical views of Spengler and Toynbee; the evolutionary/equilibrium perspective influenced by Durkheim through Talcott Parsons (which informed the sociological view of diffusionism discussed above); and the conflict perspective influenced by Weber. One of the most valuable aspects of a Marxian approach to history, especially for historical sociology, rests in a fundamental assumption of historical materialism concerning the inseparability of human agency and history. Rather than viewing history as an outside force operating according to its own dynamic to which humans are passively subject, history is viewed as the total process of human production of society where human societies are understood as "embedded in their own past" (Abrams 1982, p. 35). This stands opposed to, for example, the Parsonian view of social evolution which describes "structural change divorced from historical action" (Abrams 1982, p. 116).

Overview of Steel Industry Development: The United States Steel Industry in the Pre- and Post-World War II Periods

Steel production is synonymous with industrialization. To a great extent, the history of steel production in the United States is the history of the nation's development as a world capitalist power which, among other capitalist nations, underwent massive industrialization during the second half of the nineteenth century. Heilbroner and Singer (1984, p. 171) point out that at the time of the American Revolution, steel could be produced only in small quantities "in crucibles not much larger than a vase. At the Crystal Palace Exposition of 1851 a 2-1/2 ton ingot of steel (made by combining the outputs of many crucibles) was a sensation." When Andrew Carnegie's Edgar Thomson works began production in 1875, the Bessemer Converter, which revolutionized steel production, could put out about five tons of steel in less than half an hour. In 1900 mechanized steel plants used massive converters which could put out 20 tons of steel at a time (Heilbroner and Singer 1984, pp. 170-172), so that by the turn of the century the international competitive position of capitalist nations, national strength, and soundness of a nation's foothold in modernity were measured in millions of tons of steel output.

In the United States, the transformation of the iron industry and the growth of the steel industry was rapid after the Civil War. The stages of its development correspond to advances in capacity of firms to control increasingly large markets and integrate all aspects of steel production, from ore processing to finished steel products, under

single corporate administrations. As Samir Amin (1975, p. 357) has argued,

Every phase of [capitalist economic] expansion is characterized by a particular accumulation model: a type of propelling industry, specific forms of competition and a definite kind of firm.

Along a similar line, Hymer (1975, p. 37) believes that the stages of capitalist development have been accompanied and propelled through development and transition in concurrent stages characterized by dominance of representative types of business organizations. Such forms have developed from the workshop, single factory company, national corporation, multidivisional corporation, and most recently the multinational corporation.

Thus, in the specific case of the domestic steel industry, it is in turn asserted that its stages of development are demarcated by changes in the form of the capitalist business firm--an organizational level model of capitalist accumulation, competition, and labor control under which production is carried out. The history of the steel industry can then, for example, be traced through the history of its firms, the forms of which rise historically in response to problems presented in the process of capitalist accumulation, e.g., its history from the Carnegie Steel Company; to Carnegie Steel Company, Limited; to United States Steel Corporation; to USX. This socio-historical analysis of the factory closure issue explicates the relationship between the development of firms and the reproduction of capitalist society.

Besides these organizationally defined stages, the history of iron and steel production in the United States can be broadly divided into two stages of national development: pre- and post-Second World War.

The choice of 1945 as a dividing point between two eras is not made arbitrarily. The stages correspond to the period of the rise of the United States as a world industrial capitalist power from the Civil War to its relative and gradual decline as such in the years following World War II⁹ which Mandel (1978, p. 122) describes as "characterized by decelerated capital accumulation."

Current deindustrialization literature in sociology is concerned largely with the discussion of factory closures in relation to post-1945 developments. In my work, emphasis is placed on pre-1945 history in relation to which post-war development will be understood. Particularly, the focus of this work is iron and steel industry development from Reconstruction to about 1929--to the height of its development in the pre-World War II world. This, of course, does not cover the complete history of iron and steel production in America, so some reference to pre-Civil War industrial development is important in establishing the context of a study which places a great deal of emphasis on post-Civil War history.

From Workshop to Factory: Industrialization and Capitalist Development

Iron production in America dates to colonial times when the first blast furnace was constructed at Saugus, Massachusetts, in 1645 (Davis 1933, p. 139, and Hogan 1971, p. 1). The first iron works built outside of New England were constructed in New Jersey in 1716.

⁹ In this work, 1945 is considered to be a turning point in the economic and political history of the United States marking its transition from growth on the one hand to hegemony and decline on the other.

From these times until the first decades of the nineteenth century, iron production remained a very small scale, geographically scattered, largely craft-oriented endeavor, supplying only local markets (cf. Warren 1973, p. 11; Potter 1969, pp. 47-50; and Szymanski 1978, pp. 151-161).

Supplying the needs of small agricultural markets, the production of iron in the United States was itself "analogous to agriculture" (Warren 1973, p. 11). While in Britain, by the beginning of the nineteenth century, advances had been made in the use of coal to provide the blast for its furnaces, in the United States manufacture of wrought iron depended on charcoal fuel almost until the time of the Civil War.¹⁰ This required vast amounts of timberland since a typical rural blast furnace might require some two to five thousand acres to supply it with sufficient fuel for a year (Warren 1973, p. 11; and Temin 1964, p. 85). One commentator summarized the character of iron production in America in these terms:

'the manufacturing operations in the United States are all carried on in little hamlets, which often appear to spring up in the bosom of some forest, gathered around the waterfall that serves to turn the mill-wheel. These villages are scattered over a vast extent of the country, from Indiana to the Atlantic and from Maine to North Carolina, instead of being collected together, as

¹⁰ A similar system of charcoal-produced iron remained in operation in Sweden, which lacked a domestic source of coal, until the late nineteenth and early twentieth century. Sweden's iron industry remained fairly lucrative as it supplied the steel works in Great Britain and industrializing United States and Germany until it was finally displaced as a source of ferrous input in steel making with the introduction of basic open-hearth steel (Soderlund 1960, p. 60-64). In the open-hearth process, molten iron could be directly charged into the furnace and a greater portion of the charge could consist of scrap iron and steel.

they are in England in great manufacturing districts' (Warren 1973, p. 11).¹¹

Iron production remained largely a rural endeavor for the first half of the nineteenth century in a system where manufacture took place under the direction of an artisan ironmaster who supervised the whole process from the making of wrought iron to the finished product. Production at these sites was carried out until fuel was exhausted or it became too difficult and costly to transport wood for charcoaling as the forest steadily receded from the mill.

For the first half of the nineteenth century the United States remained a nation that was largely agricultural, and the nation's iron industry remained relatively small in scale and largely oriented to supplying agricultural markets. The picture changed somewhat in the 1840s and 1850s with the expansion of railroad building (Bryant and Dethloff 1983, p. 114). Much of this construction utilized British imported rails, and the role of domestic iron producers in this period remained relatively small in supplying the rail market until after the Civil War with the erection of effective protectionist barriers (Potter 1969, p. 47, and Agnew 1987, p. 39).

Hogan (1971, p. 11) states that "it was somewhat presumptuous or premature to speak of an iron and steel industry" in the United States in 1860. The so-called take-off of the steel industry and the rise of industrialization in America began with the end of the Civil War

¹¹ Warren is quoting Zachariah Allen's (1829) work Science and Mechanics. Also quoted in connection with the character of early iron manufacture is F.W. Taussig (1931), in whose Some Aspects of the Tariff Question is written, "Tiny ironworks everywhere, but particularly in Pennsylvania, with poor equipment and uneconomic force of men, passed rapidly from birth to death; they rose and fluttered like May flies" (Warren 1971, p. 11).

and the post-1865 political conditions of Reconstruction, i.e., those conditions which led to the transition of the United States from a largely agricultural nation to an industrial one. From the earlier decades of the nineteenth century, American capital faced several major political problems. Foremost among these was competition from Britain's more advanced industrial economy which placed American capitalists in competition with foreign capital over control of the domestic market. In addition, the pre-Civil War domestic economy was dominated by Southern slave-owning agricultural wealth, disinterested in and opposed to full-scale domestic industrial development since it benefited from trade with industrialized Britain. Also, since the nation was from the time of Independence largely a household and skilled independent artisan economy, America suffered a chronic industrial labor shortage.

Domestically, the full development of the United States as a capitalist industrial nation rested on the outcome of a political struggle on two fronts: between wealth-owning factions and the domination of the factory over the plantation, and between industrial capital and direct producers over the shift of the location of production from manufacture in the household and workshop to industrial production in the factory. Fundamentally, this meant that the "trick" was to get direct producers off the farm, out of the workshop, and into the factory. Not unique to the American case or iron industry case, the problem of wage labor recruitment was historically the most essential problem of capitalist industrial development.

Britain's Industrial Revolution of the eighteenth century was centered especially on the industrialization of textile production. The

subsumption of labor to the demands of capitalistic factory production was accomplished with the development of the power loom, spinning jenny, and, eventually, the self-operating mule. Such innovations made the centralization of capital and therefore the factory and mill town possible, and represented the appropriation of the means of production and subsistence as capital. Along with these innovations, the industrial wage labor force was created as an outcome of land enclosures, foreclosures, and evictions, especially in Celtic regions like Ireland, which forced peasant proprietors and rural artisans from the countryside to growing industrial centers like Manchester (Engels 1845/1987, pp. 52-53, 66, and 280).¹²

As recognized by Raymond Williams (1973, p. 302), the development of industrial capitalism is a process where countryside is eclipsed by city. Tilly (1983, pp. 123-124) discusses the process of urban industrialization as the relocation of manufacture from the countryside to cities, a process which he describes as the deindustrialization of the countryside as means of production were concentrated as capital in the cities. If in England the growth of industrial urban centers involved pushing labor off the farm and out of the workshop

¹² The creation of this industrial proletariat was not dissimilar in process from the creation of an agricultural proletariat in Britain as feudalism gave way to agrarian capitalism. Enclosure forced serfs and villeins off their holdings, and common lands as land was given over to the pasturage of sheep so that wool could be sold on the growing continental market (see Cohen's 1978, p. 175-180 discussion of this and his comments on its importance to Marx's formulation of the transition from feudalism to capitalism in the process of primitive accumulation). The creation of a proletariat necessarily implies the dispossession of independent direct producers, their separation from the means of production--once independently owned, and their submission to capital in exchange for wages (Zeitlin 1981, p. 110-111).

into the factory, industrialization of the United States, which also centered on textile production, pulled labor into factory. At places like Lowell, Massachusetts, and Manchester, New Hampshire, centers of textile industry growth in the United States, unmarried daughters of farm families in New England comprised a surplus labor force brought to the factories by promises of benevolent corporate paternalism. The mill interests preached a philosophy of "benevolent control" which in the words of Hareven and Langenbach¹³ (1978, p. 14),

treated workers as the "corporation's children" and which permeated all aspects of life; the organization of work, the strict management of boardinghouses, the founding of charities, and the endowment of churches....[T]he Company also regulated their behavior after working hours in order to reassure their parents. The boardinghouses were locked at 10:00 P.M., church attendance was compulsory, and alcoholic consumption was prohibited.

In this way, "the mills...sought to recruit into their workrooms and carefully supervised boardinghouses single young women from the 'virtuous rural homes' of middling yeomen" (Prude 1983, p. 2).¹⁴

¹³ Barbara Wertheimer (1977, pp. 16-84), in her discussion of the factory bell, relates a similar story of the rise of company control over the lives of working women.

¹⁴ When these daughters of "virtuous rural homes" finally organized the Female Labor Reform Association (FLRA) in 1845 and began asserting their rights as "free-born Americans, children of the Revolution and equal in birthright to the mill owners" and demanded reduced hours and participation in establishing working conditions (Wright 1982, p. ii), blacklisting and strikes became more common. Mill owners sought "greener pastures" in the labor of agriculturally displaced Irish and later French-Canadian immigrants (Hareven and Langenbach 1978, p. 14). See also Bridges (1986, pp. 163-164) who argues that the "Lowell girls" exemplified artisans of the Jacksonian age who viewed themselves as "proud bearers of the ideology of Paine and the American Revolution" and who based political claims as laborers upon appeals to equality and natural right.

Industrial revolution does not represent the mere restructuring of economic life--the giving up of the farm and workshop for the pattern of industrial life of the factory. Industrial revolution is also a revolution of capital involving the conversion of labor processes into processes of capital accumulation, that is, the passing of control over labor processes from direct producers to capitalists. Industrial revolution is therefore political revolution. Compulsion of laborers to the discipline of the factory is made possible by technological and organizational changes which make previous forms of production unnecessary and bring the seller of labor power into a dependent relationship with capital because the seller of labor power confronts the buyer of labor power as owner, controller, and manager of the means of production and subsistence. This is consistent with Marx's (1863-1866/1977, pp. 1019-1023) discussion of the process of subsumption of labor to the conditions of capitalistic production, where the first stage in the process of separation of labor from the means of production necessitates change in the scale of production through mechanization, centralization of production, or some other means which for all practical purposes makes handicraft or artisanal production impossible. In both the British and American cases, industrial revolution, the rise of the textile industry, and the rise of the factory took place with the dislocation of agricultural labor forces. Also in each case, industrialization of textile production provided the impetus for the industrialization of other aspects of production and

destruction of craft in those areas as well, especially resource extraction, energy, transportation, and most notably iron production.¹⁵

Changes in the scale of production came with the introduction of coal fuels and with advances in river, canal, and rail transport which made it possible to mechanize and to build permanent factories around which mill communities could be built so that industrialization was a process through which "old artisanal centers were bypassed and eventually ruined" (Chirot 1986, p. 224).¹⁶ Still, in the iron industry, these changes came at first not to production of basic wrought iron itself, but only to factories making finished and semi-finished products. For example, in 1812, the first rolling mill was built at Pittsburgh, Pennsylvania, for the production of rods for nail making and hardware articles. Typical of the time, the mill was still dependent upon rural artisans for the iron which was worked up into finished products. This kind of mechanization of production, occurring in the context of the labor shortage of early industrialization, was directed at replacing unskilled labor so that more scarce craft labor could be focused on "jobs requiring more skill, judgement, and complexity" (Sennett and Cobb 1972, p. 12).

It was not until 1818-1819 that iron production began to move completely into the factory. At that time, a rolling mill was built at Pittsburgh given over to the production of wrought iron itself and selling semi-finished sheets and bars. The move from the countryside

¹⁵ See also Elisha P. Douglas (1971), The Coming of Age of American Business: Three Centuries of Enterprise, 1600-1900.

¹⁶ "[E]very new factory built in the country bears in it the germ of a manufacturing town" (Engels 1845/1987, p. 66).

to the factory was pushed by the adoption in America of techniques which had been in use in Britain since the latter part of the eighteenth century, particularly use of coal as fuel and the replacement of the open forge with the introduction of the so-called reverberatory or "puddling" furnace. The puddling furnace made refinement of comparatively large batches of iron possible representing, therefore, change in the scale of iron production without fundamentally changing the craft of iron making. The change in scale, however, did necessitate the replacement of the artisan's hammer with mills consisting of series of grooved rolls (Hunter 1969, p. 90).¹⁷ It was not until the introduction of the Bessemer converter for steel making that skilled craft labor would begin to be replaced by mechanization as the converter made the craft of iron puddling unnecessary (O'Connor 1935, pp. 29-30; and cf. Sennett and Cobb 1972, p. 12). What the power loom and spinning jenny were to the movement of textile production from the household to the factory, so the puddling furnace and steam-driven rolling mill were to the subsumption of the craft of ironmaking.

¹⁷ On British iron producing developments of a century earlier and of iron puddling, Engels (1845/1987) wrote:

The rich iron deposits of England had hitherto been little developed; iron had always been smelted by means of charcoal, which became gradually more expensive as agriculture improved and forests were cut away. The beginning of the use of coke in iron-smelting had been made in the last century, and in 1780 a new method of converting into available wrought iron coke-smelted iron, which up to that time had been convertible into cast iron only. This process, known as 'puddling', consisted in withdrawing the carbon which had mixed with the iron during the process of smelting, and opened a wholly new field for the production of English iron.

and with it the iron master, to the conditions of capitalistic production. However, while iron production was relocated from the workshop to the factory under the compulsion of the reverberatory furnace, the iron industry, like other emergent industries in the United States, remained scattered and uncoordinated.

The formation of the domestic iron industry as a genuine industry intensified following Northern victory in the Civil War, which brought about political changes facilitating the protection and therefore the growth of the domestic industrial capitalist class. It was Reconstruction which created conditions favorable to national industrial capitalist development against foreign, largely British, capital--consolidation of the domestic market, and in the area of labor control, creation of the conditions for the further transformation of the workforce from a craft-based to an industrial one. This was eventually accomplished through such policies as the erection of trade barriers, provision of a federal reserve system, and immigration policies all of which were made possible by the Union's victory. The Civil War, in essence, broke, in favor of rising Northern industrial capital, the economic and political force of the long-standing alliance between Northern merchant capital and Southern slave-owning planter wealth which had hitherto benefited from "free trade" with Britain (Szymanski 1978, p. 153). On the outcome of the Civil War, Douglas Dowd (1977, p. 62) wrote:

If we may judge the intentions of warriors by what they do after victory, the organization and functioning of the American federal government during and after the Civil War tells us that northern

intentions were to adapt federal power to the needs of industrial, not planter, capitalism.¹⁸

American industrialization advanced rapidly with the support of the state. Western expansion provided new markets and new sources of fuel and other raw materials. The country was soon carpeted with railroads, and if the pre-Civil War political economic orientation of the country radiated South to North along the Mississippi River, it changed direction from East to West along the Transcontinental Railroad.

From Company to Corporation: The Transition to Steel Production

The first stage in the development of the steel industry in the United States began in the post-Civil War period around 1865 and culminated in 1892 with the strike at Homestead, Pennsylvania. This was the period of transition from iron production to the emergence of

¹⁸ There is a parallel to be drawn between the political struggles represented by the debates over the English Corn Laws in the first half of the nineteenth century and the American Civil War. Both represented political conflict between the interests of industrial capital against agrarian wealth, both were victories of industrial over landed wealth, and both resulted in changes of direction of state policy in support of such interests. For Britain, where industrialization was well advanced in comparison to other capitalist nations, the repeal of the Corn Laws supported a free trade policy and access of British capital to foreign markets and goods. In the United States, an emerging industrial capitalist nation which had to compete with Britain even over control of its own domestic market, Union victory established the basis upon which industrialization could advance, especially in the form of protectionist policies (cf. Kaufman 1982, pp. xxviii and 18-20). One question that historians have debated is why, in the American case, the industrial-agrarian conflict led to war and not to a legislative solution (Genovese 1965, pp. 5-10). My position on the issue is not to ask whether or not the war was inevitable. Since the war did take place, it is more important for this study to understand its consequences for political economic development and its relation to the development of the iron and steel industry.

the nation's steel industry. Set against the backdrop of the dismantling of iron producing facilities was the adoption of steel producing techniques such as the replacement of the puddling furnace with the Bessemer converter; the complete adoption of coal fuel and steam power; the shift from an agricultural market to an industrial one as companies rushed to supply steel rails for railroad expansion; and most importantly, represented by the defeat of the Amalgamated Association of Iron and Steel Workers at Homestead, the final transformation of the labor force from a craft based and highly skilled one to an industrial labor force. In basic steel production, this created a workforce of semi-skilled operatives subject to the political and economic costs of advancing mechanization. At the beginning of the period, "Steelworkers had been the manipulators of raw materials and molten metal. They became the tenders of machines" (Brody 1960, p. 31).¹⁹

These trends in steel production were accompanied by other changes in the industry. The steel industry was developing away from local markets and scattered, decentralized production to regional and national markets and the growth of more centralized steel producing districts in and around places like Pittsburgh, Pennsylvania; Chicago, Illinois; Youngstown, Ohio; Wheeling, West Virginia; and Birmingham, Alabama. Geographic centralization and the urbanization wave of the

¹⁹ Brody (1960, p. 30) offers this example:

Where mechanization was perfected, the steel was rolled entirely without direct human contact. Visiting Englishmen saw the operation of Pennsylvania rail mills conducted "practically by the agency of unseen hands." There was "no labour at all at the rolls."

late nineteenth century were taking place along side of corporate centralization.

As in other industries, like railroads and oil, the corporate landscape of the steel industry was changing from one in which small, independent, often single factory concerns predominated toward combinations characteristic of the post-Civil War merger movement. In 1889, the precedent for such development was set with the formation of the Illinois Steel Company, the first large-scale combination in the industry (cf. Jennings 1926, p. 449). By 1890, in a climate of mechanization and merger, the United States steel industry surpassed that of Great Britain in output of basic steel.

From 1892 to 1901, the merger movement in American capitalism continued and in steel the great trusts of the industry were formed, culminating in 1901 with the formation of the United States Steel Corporation. United States Steel brought together under a single corporate administration the largest steel trusts in basic, semi-finished, and finished steel products. These included Carnegie Steel Company, Ltd.; the Moore Group of steel concerns; the Morgan Group, which held Illinois Steel among its other concerns; American Steel and Wire Company, which at one time controlled seventy-five percent of the nation's wire production, and Shelby Steel Tube Company, estimated to have controlled ninety percent of the nation's seamless steel tube capacity (Boore 1951, pp. 60-61).

Where these trusts had previously combined many independent producers and gained control over aspects of the steel market, United States Steel combined trusts and contributed to the domination of the domestic economy by huge monopolies. Concerning the magnitude of

the formation of United States Steel, according to Foster (1986, p. 64),

It has been estimated that between a quarter and a third of all U.S. capital stock in manufacturing was directly affected by mergers taking place between 1898 and 1902 alone. The formation of U.S. Steel in 1901 fused 165 separate companies to create a monopolistic corporation controlling approximately 60 percent of the total steel industry.

These trends in the concentration of the industry continued through the first half of the twentieth century. In addition to U.S. Steel, other corporate actors, such as Jones and Laughlin, Bethlehem Steel, and Republic Steel, rose to pre-eminence.

Each stage in the growth and expansion of the steel industry in the post-Civil War period, each transition to wider and more consolidated markets and to more centralized production by the industry's firms, was accompanied by rounds of factory closures. First, the transition from iron to steel production was accompanied by the abandonment of iron producing facilities. Jones and Laughlin, for example, closed 32 iron puddling furnaces by 1892. By the turn of the century, the basic steel producing companies, all of which were producers of wrought iron in the 1800s, had completely ceased iron production (Brody 1960, p. 8).

Secondly, under the protection of the Morrill Tariff of 1861, the McKinley Tariff of 1891, and the Dingley Tariff of 1897, all of which represented the progressive severing of British steel producers from access to the American market, there was the exportation of British steel capital to the United States. This is especially true of the 1890s when the American tin plate industry grew using facilities imported from Wales and followed by migration of Welsh labor (Hogan 1971, p.

351; and Knox 1944, p. 12). It is against this background, of Britain challenged in the 1880s and overtaken in the 1890s by "upstart" industrial capitalist nations like the United States and Germany, that British Marxist historians trace the decline of Britain as an industrial power (Caslin 1987, p. 257). With special regard to its steel industry, Hobsbawm (1968, p. 134) notes:

From then on Britain was one of a group of great industrial powers, but not the leader of industrialization. Indeed, among the industrial powers it was the most sluggish and the one which showed the most obvious signs of relative decline.

Thirdly, the merger movement in steel gained momentum in the last years of the nineteenth century, leading toward the formation of United States Steel Corporation in 1901. Between 1898 and 1900, for example, eleven large mergers occurred involving almost two hundred independent companies. During this period, steel companies were not only buying and building plants, but this process also brought plant shutdowns, dismantled facilities, and capital flight as companies sought to establish market control, organizational coordination, and geographic centralization of production. An outstanding example of this is found in the history of the Shelby Steel Tube Company prior to its acquisition by United States Steel. Shelby pursued a policy of acquiring the plants of competitors in order to shut them down, dismantling facilities and transferring them to other Shelby plants, especially those located in and around Toledo and Shelby, Ohio.

Fourthly, in the process of monopolization, United States Steel Corporation closed or abandoned 33 plants from the time of its formation to 1905. From 1910 to 1920 there was another wave of closures undertaken by the corporation, among which was the

reduction from 34 to 26 plants operated by USS's National Tube Company, and from 1923 to 1929, United States Steel dismantled or abandoned 30 of its plants. At the same time the corporation was undergoing vast external and internal expansions and was consolidating its monopoly position, for example, between 1906 and 1911, United States Steel built its huge steel producing facilities and the city itself of Gary, Indiana. Throughout this time similar developments were taking place within other steel corporations. In general, the drive toward more centralized and expanded production was accompanied at each stage by a parallel drive to shut plants down. Abandonment and dismantling of plants historically have been part of corporate policies which seek to concentrate operations.

From Corporation to Conglomerate: The Decline of Steel Production in the United States and Post-World War II Developments

Domination of the United States economy by large, multidivisional, nationally organized firms initiated the consolidation of the hegemonic position of the American steel industry in the world market, a position which in the post-World War II years has been steadily eroding. The position of the domestic steel industry was established upon expanding internal markets for steel related to the needs of large-scale militarization, the growth of the automobile industry, massive urbanization, and, in general, expansion and intensification of consumer as well as industrial markets (Warren 1973, pp. 214-230). The global position of American steel accompanied the growth of what Warren calls world steel districts. The United States steel industry grew into a "world industry" in the wake of the great

boom of post-war "world reconstruction," based on a foundation of American capital. In 1945 at the apex of its development, the American steel industry provided the world with 62 percent of its steel (Warren 1973, p. 9). From that year through the 1950s and 1960s the position of American steel relative to world markets was declining. By 1968, the United States accounted for only 22.5 percent of the world's steel, and "In 1971 for the first time since 1890 her output of steel was exceeded by another nation when the U.S.S.R. pulled ahead" (Warren 1973, p. 10 and cf. Chirot 1986, p. 229).²⁰

As the "moment of truth" for British steel came in the 1880s and 1890s, the most critical years for the steel industry of the United States came in the late 1960s and 1970s. It was during this time that the international position of the industry began its most severe decline as it was increasingly challenged by foreign producers, particularly Japan. Referring to these developments, Bluestone and Harrison's (1982, p. 5) description of the contemporary United States and the current deindustrialization crisis is strikingly similar in tone and sentiment to Hobsbawm's description, cited above, of the decline of Britain in the nineteenth and early twentieth centuries:

[E]ven before the 1980s began, the American standard of living no longer placed us first among the developed nations of the

²⁰ During the 1950s, the development of Soviet steel industry was pushed by Stalin's consideration of steel production as the basis for all further Soviet industrialization. Thus, steel was considered a "leading link" in Soviet planning, an industrial sector which commanded developmental priority even at the expense of the development of other sectors (Clark 1956, pp. 267-277; Naum 1961, pp. 236-237; and Ellman 1979, p. 18). As Naum (1961, p. 237) states about post-war Soviet industrial development, "Everything else was largely neglected-the more so, the less it happened to be connected with steel."

world....Adding to the economic despair is America's apparent inability to compete in the global marketplace. Our share of the world's manufactured exports has fallen from more than 25 percent to less than 17 percent in the last twenty years, and relative to our strongest competitors, it could easily be argued that we are being rapidly pushed to the sidelines.... [And] the number one product sold to America was passenger motor vehicles, followed by iron and steel plates....

An important organizational development that propelled the advance of Japanese steel and the decline of American steel was the most significant merger in the whole history of global steel since the establishment of United States Steel in 1901: the formation of Nippon Steel Company.

Nippon Steel, which merged Yawata and Fuji Steel Companies, produced a corporation of unprecedented size in the steel industry. In the very first year of operation, 1970, the new company,

...produced more steel...than the United States Steel Corporation which up to that time, had been the unchallenged leader in world steel production. U.S. Steel's output of crude steel in 1970 was 31.4 million net tons, while Nippon Steel's was 37 million net tons (Hogan 1972, pp. 114-115).

Led by Nippon Steel, by 1971 Japan took the lead in productivity of basic steel when it surpassed the levels of output of the European Economic Community (EEC) and the United States (Warren 1975, p. 224; and Hirschmeier and Yui 1981, p. 302). In 1985, Japanese steel output was 105 million tons, 14 percent of the world's total output, while the United States accounted for 80 million tons or 11 percent of the total--this despite the absence in Japan of domestic sources of iron, coal, or energy (Yachir 1988, p. 17).²¹

²¹ Acs (1984, p. 83) also points out that by 1980, the United States steel industry was third in output behind the Soviet Union and Japan in addition to lagging behind in combined output of the EEC. On this point, Yachir's (1988, pp. 17-18) study shows that in 1985, EEC

As the United States emerged as a leader among capitalist industrial nations in the 1870s to 1890s depression, the increasing importance of Japan among capitalist nations and as a steel producer took place in the context of the recession of the 1970s. In steel production, capacity across the developed capitalist countries has declined. In North America it has fallen from 156 million tons in 1978 to its present level of 136 million tons and, it is estimated, must be further reduced to 125 million tons by 1993. Japanese steel capacity has fallen too, but not at quite the velocity. Through the 1980s Japanese steel capacity went from 142 to 125 million tons and is expected to hold at about this level for the immediate future. In general, capacity use across the developed world was about 58 percent (Yachir 1988, pp. 6-7).

Idled steel capacity has brought with it an employment crisis throughout the developed capitalist world. As is true in general of the current crisis in steel with regard to national production levels, export levels, degree of internationalization of production, and level of capacity use, the employment crisis across the capitalist world varies in severity. Least affected has been Japan, whose labor force in the steel industry declined 22 percent between 1973 and 1982. In the United States the steel labor force fell by 38 percent over the same period and by 59 percent in the United Kingdom. Across the EEC some 800,000 jobs were lost--about one-third of those employed in steel production (Yachir 1988, p. 8). The unprecedented decline of

nations together accounted for 121 million tons of steel or 17 percent of the world's total.

capacity use in the world's steel industry has made factory closure a problem across the world.

It is against these international developments and in a business climate currently explained by steel producers and commentators alike in terms of the "challenge from foreign competition"²² that the present condition of the domestic steel industry is discussed (cf. Mueller 1982, pp. 76-77; and Cox 1987, pp. 318-320). Paul Tiffany (1988, p. 3) summarizes the condition of American steel production since the Second World War:

The American steel industry has degenerated to an apparent state of permanent contraction. Steel mills, once surging with orders to be filled, are now forever shuttered in many parts of the nation. Numerous companies have filed for bankruptcy, while others escaped by only the thinnest of margins.²³ Workers, once "idled," were then permanently eliminated, and

²² At the time that it was filing for bankruptcy in July of 1986, LTV Corporation, the nation's second largest steel producer, placed a full page advertisement in the New York Times in order to explain the need for the corporation's reorganization. The advertisement which appeared on 18 July 1986 quoted chairman and chief executive officer Raymond A. Hay, who said "The weakness in the steel and energy sectors is due in large part, to an unprecedented and sustained level of imports over the past several years which continues, virtually unabated. It is estimated that direct and indirect imports account for about 51 percent of total steel consumption in the United States."

²³ For example, in July 1986, LTV, the nation's second largest steel producer filed for bankruptcy and operation under Chapter 11 for a period of one and a half to four years, citing the "slump" in the U.S. steel industry as its reason. Operating under protection of Chapter 11, LTV posted a \$610.4 million loss in September of that year (Time, 28 July 1986, and New York Times, 11 September 1986). The condition of the United States steel industry which drove the value of USX stock down also made this major domestic steel producer the object of a potential take-over led by "corporate raiders" Carl Ichan and T. Boone Pickens, who had been buying up shares of USX stock in September and October of 1986 (Wall Street Journal, 22 September 1986; New York Times, 2 October 1986; and Prokesch New York Times, 26 September 1986).

steel imports displaced an ever larger share of the domestic market.

Several major interrelated trends can be more specifically identified concerning the present stage of development of the American steel industry at home in the post-war period including the conglomeration and diversification movement representing the flight of domestic steel producers from steel production, and the rise of decentralized, nonunionized, smaller scale specialty steel producers.

The basic structure of the United States steel industry remained, for the most, part unchanged from the time of the formation of the United States Steel Corporation until the opening of the 1960s (Hogan 1972, p. 11). From that time, the direction of steel industry development was toward concentration of control over steel production through the acquisition of steel firms engaged in similar processes and steel firms engaged in processes located on longer chains of production. In other words, the domestic steel industry grew largely through intraindustry acquisitions--steel firms acquiring the property of other steel firms.

Changes in the corporate structure of the steel industry were precipitated by a developing condition where the requirements of profitable steel mill investment have become more costly and lower in rate of return. Such is the case in the climate of world steel production but more so in the United States. Describing the condition of "frozen investment in fixed steel capital," which has been steadily decreasing since about 1970, Yachir (1988, pp. 6-7) states:

From 1975 the figure of \$US5.7 billion of investment (in \$US 1975) for the main capitalist countries taken as a whole must be appreciated in relation to the cost of a single big steel plant. The investment expenditures of the US, Japan, and the EEC

would in 1978 hardly finance the building of two steel plants of an average size! Investment in Western steel industry is now limited to modernization and capitalist rationalization of production. The age of accumulation in the steel industry is definitely over in the big capitalist countries.

This condition is associated with a major reorganization movement in the steel industry. In the United States this has been taking the form of conglomerate diversification or the retreat of American firms from production of basic steel, the shift of capital from traditional leaders in the steel industry from steel production to unrelated industries, intra-industry mergers and take-overs of steel firms by other conglomerates. Steel firms are both taking over and being taken over by unrelated concerns.

The extent of diversification is illustrated by these examples (Hogan 1972, pp. 12-14):

- In 1964, United States Steel Corporation moved into the chemical industry by buying the assets of Industrial Chemical and Protective Coating Division of Pittsburgh Chemical Company. In 1966 United States Steel formed its USS Chemicals Division, and in 1969 the Corporation became a producer of plastics with its acquisition of General American Transportation Corporation. United States Steel also undertook ventures in titanium, engineering, consulting, and real estate.
- At about the same time, Bethlehem Steel Corporation acquired Kusan, a producer of plastic parts, and an eighty percent share of Multicon, a company producing houses.
- In 1968 National Steel Corporation entered aluminum production with an investment of more than \$100 million. Through the

acquisition of aluminum concerns National put together a fully integrated aluminum operation from smelting to distribution.

- In 1969 Republic Steel organized Republic Steel Enterprises, Inc., a wholly owned subsidiary which brought Republic Steel into real estate and housing. Similar developments took place in Inland Steel Corporation and Armco, the latter explaining the drive to diversify for "the maximum benefit of its shareholders" (Hogan 1972, p. 14).²⁴

The symbolic if not the actual height of the diversification movement affecting the steel industry was reached in 1986 when United States Steel Corporation changed its name from USS to USX. In the newly reorganized holding company, steel and related production, organized in a corporate subunit which retains the name U.S.S., accounts for only 31 percent of corporate interests.²⁵ U.S.S. division stands among three other subdivisions of USX including Marathon Oil Company, Texas Oil and Gas Corporation, and U.S. Diversified Group, the latter of which is involved in chemicals, engineering, and real estate (Hicks, New York Times, 9 July 1986). The recent reorganization resulting in the formation of USX is the culmination of a movement in the steel industry to direct investments away from steel and toward the production of other materials in order to establish flexibility and control over a variety of areas. The most important consideration in investment, defined by the demands of capital accumulation, is not the survival of a particular industry or nation but the survival and

²⁴ Hogan is quoting a letter from the president and chairman of Armco which accompanied the corporation's 1966 Annual Report.

²⁵ Marquis (1984, p. 25) reports that in 1984, U.S. Steel's sales of steel accounted for only thirty-four percent of all of its revenues.

advancement of capital. For example, conventional wisdom accounts for the decline of the steel industry explaining that shut down of steel plants is an outcome of product substitution, e.g., that "aluminum, plastic, and other material...have substituted for the product" (Time 23 June 1986). But, steel corporations are not the passive victims of substitution. At a 1969 press conference, Edgar Speer, then ascending to the presidency of United States Steel Corporation, was asked, "What does U.S. Steel intend to do about the use of plastics by the automobile industry?" He replied, "Go into the plastics business" (Hogan 1972, p. 13).

Accompanying diversification among steel producers, beginning in the 1960s, was an "abrupt outburst of another form of corporate change--the steel takeover" (Hogan 1972, p. 16). Assets of steel companies were increasingly being taken over by other conglomerates. At the height of this movement in 1968, five out of the top 20 steel producers were taken over by conglomerates. Included among these were Lykes Corporation's takeover of the nation's eighth largest steel maker, Youngstown Sheet and Tube, and Ling-Temco-Vought's (LTV) takeover of Jones and Laughlin Steel Corporation, followed in 1984 by LTV's takeover of Republic Steel (Hogan 1972, p. 17; Buss and Redburn 1983, p. 20; and Time, 28 July 1988).

Part of the trend toward the conglomeration of the traditional integrated steel producers was the decline of their role in the domestic production of steel. Along with the movements to diversify and toward corporate takeover, Adams and Mueller (1986, p. 83) state:

Major Japanese steel producers have acquired equity shares in several integrated American steel firms [and] joint ventures [between domestic and foreign firms] have been organized to build and operate new steel installations.

In other words, "The geographic area of the United States is...not necessarily synonymous with the 'home market' of the American steel industry" (Adams and Mueller, 1986, p. 77). This refers to an old battle. In 1865, the geographic area of the United States also was not synonymous with the American home market, and from the end of the Civil War through the second half of the nineteenth century American iron and steel producers were engaged in a struggle with British steel capital over control of the American market in the period of the industry's formation. Presently, in the period of its decline, there is an ongoing increase in the proportion of integrated steel products supplied by foreign producers (Adams and Mueller, 1986, p. 79).

Yet American steel producers are not to be thought of as the passive victims of parasitical foreign competition. One of the alternatives considered by USX in the attempt to head off a takeover and increase the value of its stock was to look for a foreign buyer for its steel making division. Prokesch (New York Times, 26 September 1986) wrote:

Potential purchasers could come from Japan or South Korea. But most Japanese steelmakers already have partners in the United States....And, the Koreans...seem committed to developing their domestic steelmaking capacity rather than making foreign acquisitions.

At the same time that these developments were taking place, the United States government finalized a trade agreement with Europe outlining a program involving importation of European produced steel

and steel products in exchange for more open access of U.S. producers to European markets for the sale of citrus fruit.

With respect to foreign markets and in relation to foreign steel producers, such is the legacy of the United States steel industry subsequent to the formation of the United States Steel Corporation. Following World War I, opportunities were seen by many in the steel industry, including Elbert Gary, to secure a place in foreign markets by supplying the steel needs of the world's war-torn economies. Tiffany (1988, p. 10) states:

Operational managers of USS...sought to expand their foreign business by exploiting the void in European production caused by the destruction of capacity during the war. This objective came into conflict, however, with American investment bankers who foresaw great opportunities in Europe through profits that could be secured from underwriting loans to reconstruct European industry...."Should the American steel industry let the foreign steel producers take away its world markets?" asked one banker bluntly in 1927. "It should," he answered.

With a similar approach taken in the rebuilding of the steel industry following World War II, finance profits were contingent upon the success of the steel industries of other nations in which bankers were invested.

This meant that American steel producers were to avoid impeding European and Asian steel production if loans were to be repaid (Tiffany 1988, pp. 10 and 168-169).²⁶ Tiffany's overall argument,

²⁶ For example, as Chirot (1986, pp. 194-203) comments, the Marshall Plan of 1948 was designed to provide the capital to be invested in European industry in order to produce exports, in turn, in order to pay for American imports so that between 1945 and 1955, \$38 billion dollars in loans and grants were provided for the industrial development of other nations, seventy-five percent of which went to Japan and Europe. The Bretton Woods Agreement four years earlier established United States currency as world currency and ushered in the so-called Pax Americana. This was the political basis upon which the

based on his account of post-war steel industry development, is that the current condition of the steel industry is the outcome of destructive and wrong decisions which have led to its decline domestically. The purpose he gives for writing the book is the hope that the lessons of the steel industry since 1945 will help us to avoid similar mistakes in other industries (Tiffany 1988, p. 190). There is no denying the extent to which current social conditions are outcomes of decisions made and actions taken in the past. What he seems to neglect, however, is the criteria which govern or at least constrain decision-making. Overall, such criteria have less to do with the demands of industrial development and more to do with the historical necessity in a capitalist world-system to accumulate wealth. While the decisions to which he refers may have run counter to the development of the steel industry, they may have made more sense in the context of an economy dominated by finance capital. It must be borne in mind, for example, that U.S.S. was a creation of finance capital, an invention of banking interests led by J.P. Morgan. To Tiffany, the decisions made concerning the nation's steel industry with respect to foreign markets--the decision to accumulate wealth in the form of interest on loans to rebuild industries of other nations--was the moral equivalent of the Trojans allowing the wooden horse within their walls, knowing

United States established itself as an exporter of finance as opposed to industrial capital.

full well it would lead to their downfall.²⁷ Thus, Tiffany (1988, p. 11) concludes:

The domestic steel industry's plans for global hegemony were thus dashed by the very force that brought it to life: the nation's powerful private investment banking community. The steelmakers, for all their supposed power and influence, in fact were the subordinate actors in the drama.

Along with all of these changes affecting large steel companies, the "form" of domestic steel production is shifting from a market dominated by the traditional large, integrated firms to the rise of "mini-mills" and, to a lesser extent, that of the so-called specialty steel producers. This growth has been accompanied by the geographic shift from a relatively high wage to a lower wage, generally nonunionized labor force (Agnew 1987, p. 167; Cox 1987, pp. 318-320; Adams and Mueller 1986; Acs 1984, p. 98; Barnett and Schorch 1983, pp. 83-103; Sabel 1982, pp. 204-205; and Hogan 1972, p. 11). The impact of

²⁷ Reading Tiffany's account of the fall of the American steel industry, with his emphasis on mistakes and bad decision making, reminded me of Barbara W. Tuchman's (1984) work, The March of Folly: From Troy to Vietnam. It too is a history of mistakes, although with respect to military history. To Tuchman, the imagery of the Trojan horse as it has come down to us in folklore and legend is striking and provides her with the central organizing concept of her survey of war. "The episode of the Horse exemplifies policy pursued contrary to self-interest--in the face of urgent warning and feasible alternative" (Tuchman 1984, p. 37). With respect to his discussion of the relationship between finance capital and domestic steelmakers, it is a metaphor with which I think Tiffany would agree and a type of which pervades his work. But, as Tuchman (1984, p. 36) recognized, in the tale of the Horse, the gods are the ultimate motivators, so must it be remembered that business decisions are made ultimately with reference to the constraints and within the parameters of the logic of capital accumulation, so that the "downfall" of an industry cannot be explained with reference to decision making alone.

these non-integrated producers on the conglomerate sector of the industry is illustrated in this example from Acs (1984, p. 101):

The Raritan River Company in Perth Amboy, New Jersey, reopened in 1980, has a capacity of 800,000 tons of finished steel per year. The plant produces high quality wire rod. It is one of the most technologically advanced of the new mini-mills. The firm produces its product for the automobile industry and sells in over 30 states at a cost of about 300 dollars per ton. The Raritan River firm was instrumental in forcing U.S. Steel out of the wire rod business. In 1983, U.S. Steel closed about 20 per cent of its capacity and took a 1.2 billion dollar write-off.

The mini-mills are, therefore, offering a new source of domestic competition to the large scale integrated corporations and have been described as the "dynamic component of an otherwise sick steel industry in the United States" (Cox 1987, p. 333).

The mini-mills are the equivalent of the "high-tech" sector of the steel industry, able to utilize advanced technology on a smaller scale to produce for specialty markets with cheaper materials; e.g., the ferrous input of mini-mills is largely scrap steel as opposed to iron ore (cf. Agnew 1987, p. 167). Also, in many ways, the rise of the mini-mills represents a reversion to an earlier stage of steel industry development to the extent that they are located close to local markets (and so are not tied to old steel centers) and therefore are highly geographically decentralized. The most important advantage of the mini-mills is found in the political flexibility from the point of view of employers, to avoid unionized workforces and freedom from what has become the weight of large organization. Cox (1987, p. 333) explains:

Large scale no longer necessarily has economic advantage and may have the competitive disadvantage of rigidity, a rigidity

derived both from heavy investment in a technology that must be amortized²⁸ over a longer time and from bureaucratic rules....

Domestically, mini-mills are capturing increasingly large markets from the integrated producers who are themselves "adopting some of their features" (Cox 1987, p. 333). It is estimated that by about 1991, mini-mills, which currently account for 18 to 20 percent of domestic steel production, will account for about 30 percent of the steel produced in the United States, and by the end of the century they will account for about forty percent of total national steel production (Time 1986, 23 June, and Hicks, New York Times, 31 July 1986).

Changes in the domestic steel industry of the United States reflect a wider crisis in world capitalism, particularly in steel production which has had an impact on all developed capitalist nations. Yachir (1988, p. 5) summarizes the main points of this crisis in general and in its specific effect on the steel industry of the United States.

In 1975, for the first time since the Second World War, the production of steel fell spectacularly in all the main capitalist countries. The phenomenon first appeared in line with the cyclical development of the steel industry whose expansion since 1950, had shown quite regular fluctuations. However, it soon became obvious that this crisis was not like the others. The fall in production, which was striking in its extent, was only

²⁸ Amortization refers to the rate of renewal of fixed capital or the amount of value that must be accumulated in order to renew fixed capital. In modern, capital intensive, highly centralized capitalism. This means that if the rate of market expansion is low or markets are shrinking or remain constant over a given period of time, and increasingly large investments in fixed capital are being made, then the period over which that capital must be amortized expands. This problem of accumulation is especially acute when combined with the complementary tendency for the turn over time of fixed capital to shorten. This forms an important contradiction of "late capitalism," the tendency toward the simultaneous increase in investment in fixed capital, amortization, and velocity of turn over time of fixed capital (Mandel 1978, pp. 230-231).

the first sign of a series of troubles which affected employment, investment, markets, prices and profits. World-wide, the crisis struck all the steel industries of the developed capitalist world at the same time, although with a differentiated impact. All of this reflected a situation much more complex than a mere conjunctural downturn in their economies.

Of the steel industries of the developed capitalist countries, that of the United States has been most seriously affected. The combined steel capacities of the United States, the EEC, and Japan fell between 1973 and 1975 from 400 to 330 million tons. In 1985, United States steel output had decreased 35 percent compared to the 1979 level, that of the EEC, by 15 percent, and that of Japan by 6 percent (Yachir 1988, p. 6). So, even Japan, considered to be the up-and-coming capitalist nation and a leader in world steel production and technology, has not been unaffected. An important reason for these developments in the world steel industry have been attributed to the emergence of new producing countries in socialist and Third World nations contributing to the shrinkage of international markets and access to high quality ores. For example, the share of the Third World steel producers in world production increased from 1.6 percent in 1955 to 5 percent in 1974 and 10 percent in 1985, as the economic crisis of the 1970s "accelerated the international redistribution of production" away from the United States and toward Japan and other nations (Yachir 1988, pp. 18-19; and Amin 1988, pp. 1-2).²⁹

²⁹ Currently, Socialist countries, primarily the Soviet Union and People's Republic of China, together account for 38.1 percent of the total volume of world steel production. The U.S., EEC, and Japan account for 41 percent and other advanced capitalist nations account for an additional 9 percent (Yachir 1988, p. 18). This means that participation in world steel production is split fairly evenly between all advanced capitalist nations and the rest of the world, with the former accounting for a total of 50 percent and the latter 48.1 percent of global steel production.

The leveling of competitive conditions between developed and other capitalist nations has led to the adoption by the enterprises in the capitalist world of relocation programs directed at investment, especially in the Third World where cheap labor forces and cheap energy and other resources can be utilized (Amin 1988, pp. 1-2). This investment pattern in steel as in other industries has served to shift capacity from and develop the industry in other countries according to a pattern which involves the shut-down of plants in traditional producing areas and the opening of new ones (Frank 1980, pp. 81 and 153).

The development of the steel industry in the Third World has been generally consistent with the model of dependent industrialization offered by Evans (1979) and Bornschier (1981), that is, industrialization conforming for the most part to a nation's "dependent integration into the world capitalist system" (Amin 1988, p. 1).³⁰ In this definition, dependence stands as a "situation in which the rate and direction of capital accumulation are externally conditioned" (Evans 1979, p. 27). With special regard to the steel industry, establishment of state-run enterprises in nations like Brazil, Chile, and Argentina, among what Amin (1988, p. 2) calls "semi-industrialized" countries, were able to assert themselves as new competitors of multinational concerns of the core (Evans, 1979, p. 45).

³⁰ Although certainly not suggested by many of the adherents of this view, the choice of the word dependency is probably poor and should not suggest that Third World nations are powerless to exercise influence over the course of their own development. The power of the First World, while considerable, is not absolute--as history bears out.

Overall, the position of Japan as the leader among capitalist nations with respect to world, including Third World, steel markets, rests on its ability to expand exports, create markets for them, and export production. This is accompanied by a parallel inability of American producers to do so (Yachir 1988, p. 19). For example, with respect to one of the traditional U.S. markets of Latin America, the ideology of desenvolvimentismo in Brazil, a form of "economic nationalism," accompanied political nationalism and was translated into policy which increased the role of the state in that nation's industrialization and development in order to "dis-involve" foreign concerns.³¹ This industrialization policy was based upon the substitution of foreign imports for domestically produced consumer and industrial goods. Here, industrialization is bolstered by state-supported protectionist barriers, government programs involving the shift of income away from export consumption to domestic consumption, investment in infrastructure, and the established position of the state as an agent of foreign investment. All of these things combined to limit the role of foreign determination of the Brazilian economy. As Cardoso and Faletto (1979, p. 129) observe, "This was the time of national steel foundries, oil refineries, and electrical power stations." By 1964, the Brazilian public sector controlled most of the steel industry and was a primary exporter of iron ore which undercut the influence of Ameri-

³¹ The particular case of Brazil, it could be argued, demonstrates what Chirot (1986, p. 195) following Block (1977, pp. 70-118) calls the assertion by "national capitalist" forces of a right wing "nationalist closure" of the domestic economy which "promised a safer economic environment free from international, and particularly American, competition" (Chirot 1986, p. 195).

can companies like the United States Steel Corporation (Evans 1979, pp. 33 and 252-253; and Cardoso and Faletto 1979, p. 139). Thus, the relationship between United States steel producers to certain nations of the Third World changed in the post-war period as nations like Brazil were able, as Evans (1979, p. 81) states, to "internalize" aspects of its manufacturing. Where American interests controlled three-fifths of all direct investments in Brazil in the immediate post-war period, this share has been steadily declining at the same time that the share of Japan and the European countries has been expanding in international markets (Evans 1979, p. 82).

Not only did the relationship between United States steel producers and Third World markets change, but so did their situation with respect to Europe and Japan.

From the late fifties onwards...it became clear that North American firms were no longer competing so much with a declining British empire as with a rising combination of Japanese, German, and other European firms (Evans 1979, p. 82).

In the early 1960s, the strategy of increasing geographic diversification by expanding U.S.-owned steel manufacturing in Europe was abandoned owing to the high costs necessary for capital intensive investment (Tiffany 1988, pp. 180-181). In 1960 Benjamin Fairless, speaking on behalf of the American Iron and Steel Institute, stated, "We can't very well scrap our existing plants, representing an investment of many billions of dollars, and spend more billions to build new plants overseas" (Tiffany 1988, p. 181). Apparently, though, they could scrap plants in order to pursue more secure investments in oil, chemicals, plastics, aluminum, real estate, insurance, etc. Therefore, the strategy of corporate development among the steel companies was

product diversification and conglomeration as opposed to geographic diversification of steel production.

Related to all of these developments in the steel industry of the United States--diversification, takeover, loss of or surrender of the domestic steel market, and the rise of mini-mills--is the "deindustrialization wave" of the 1970s, the progressive disinvestment in and dismantling of the nation's basic capacity to produce. Of these changes, Hans Mueller (1982, pp. 76-77) states:

In the late 1970s...several of the large [steel firms] launched a drive to eliminate some of their structural deficiencies, involving at times major surgery on the substance of their companies. The task was facilitated by the ease with which public reaction to plant closures could be deflected against imports.

It is in light of such streamlining operations, as Mueller calls them, that current social scientific emphasis on the issue of factory closures arises, as does the concept of deindustrialization in an attempt to explain them in the post-World War II historical context. At the heart of both the deindustrialization process, as it is currently described, and this drive to eliminate structural deficiencies through conglomeration is the closure of factories. For example, of United States Steel Corporation's diversification into nonsteel areas, Bluestone and Harrison (1982, p. 4) state:

In Pittsburgh, the U.S. Steel Corporation called a press conference [in 1970] to announce that it would permanently close down fourteen mills in eight states (principally in Pennsylvania and Ohio) within the year, thus laying off over 13,000 workers. Its reward was an \$850 million tax break from the federal government, which it later put toward the down payment on the purchase of Marathon oil.

Overall, in the seven-year period from 1979 to its reorganization as USX, United States Steel Corporation alone closed "more than 150 of

its plants and facilities...and trimmed more than 50,000 workers from its steel force" (Hicks, New York Times, 9 July 1986).³² Factory closures have always been part of the process of capitalist industrial development, and in order to understand them fully they must be studied historically.

Conclusions

The deindustrialization view, particularly that developed by Bluestone and Harrison, is central to contemporary sociological work aimed at explaining the direction of economic development since the Second World War. But the deindustrialization thesis has come under attack from both the left and the right. Conservatives call the concept of deindustrialization mythical, descriptive of a nonexistent process which in actuality is nothing more than the normal operation of the mechanisms of a dynamic, progressive, and ultimately benevolent economy (cf. McKenzie 1984c, p. 11-27). The emphasis in the deindustrialization literature upon the social costs of factory closures--their dislocating and destructive influence upon individuals, communities, regions, and nations--speaks to this criticism by moving away from the conservative tendency to treat workers as mere factors of production subject to "adjustment costs." Adjustment costs become a much more serious issue when they involve alcoholism, suicide, the loss of homes, the loss of security, erosion of community tax base, and other problems associated with mass unemployment.

³² United States Steel Corporation once employed about 50,000 workers in the Monongahela Valley alone. By 1986, employment had dropped to only 5,100 (Marquis 1986, p. 23).

From the left, the internal logic of the deindustrialization thesis is questioned. Deindustrialization is held to refer to concrete social processes, but also to mystify them (di Leonardo 1985, pp. 237-257; and Houston 1984, pp. 257-260). In other words, Bluestone and Harrison's conclusions are limited to the impacts of the current wave of disinvestment characteristic of post-1945 economic developments, but it is only implicitly that the meaning of such developments are discussed in relation to the process of capitalist production and accumulation itself--its meaning in terms of class and market relations. Factory closures, for example, are adequately and successfully placed within the context of the post-war rise of mergers and conglomeration, but these in turn are not placed within the context of the historical process of capital accumulation itself. Of fundamental importance here is the tendency to submerge the "fundamental reality of class" by discussing factory closures primarily as a problem of unemployment (Houston 1984, p. 259). As Houston (1984, p. 259) states:

[Bluestone and Harrison's] analysis depends upon how capital is accumulating. If the process of capital accumulation results in stable high paying jobs as in the 1950s and 1960s then it's acceptable. But if deindustrialization in the 1970s and 1980s leads to a loss of these jobs, then it is not. This kind of nationalistic perspective is limited and must be at least questioned.

By referring to the deindustrialization thesis as a nationalistic perspective, Houston is implying that its problems stem from a limitation of scope associated with the reality of capitalism as a world-system. This is a criticism with which di Leonardo (1985, p. 243) would agree.

In this work I contend also that ideas concerning deindustrialization are limited in historical scope, so that the best way to question

the concept of deindustrialization is to examine the factory closure not merely as a contemporary social problem but as an historical problem. As Zeitlin (1984, p. 363) argues, in order to understand any social phenomenon it must be studied historically because historical study allows us to observe the "alternations" of society. By limiting its analysis primarily to domestic developments since 1945, the current analysis of deindustrialization exhibits a kind of historical "tunnel vision." By analyzing factory closures, central to the deindustrialization thesis, in the alternation between industrial growth and industrial decline, their relation to specific processes of industrial development can be seen to be less important and their role in the general process of the creation and recreation of capitalist society specified. In so doing an explanation of factory closures can be developed which recognizes that they are characteristic of both industrial growth and industrial decline that does not necessitate the association of such growth with social stability. Industrial growth need not imply the acceptability of capital accumulation.

The essential purpose of a socio-historical approach to any aspect of social life is to clarify the connection between structure, process, and event. Such an approach lends itself to analysis of the meaning or significance of factory closures which are concrete events held in current sociological analyses to constitute the process of deindustrialization, and which I argue are better placed within the process of capitalist reproduction. In essence, this work is directed at analyzing what it is about the factory closure that makes capitalist society possible. As "event is the empirical form of system" (Sahlins 1985, p. 153), the factory closure, as particular event, is an empirical

form or concrete expression of the relations and processes of capitalism.

CHAPTER III

IRON, STEEL, AND THE 'COMING OF AGE' OF U.S. CAPITALISM IN THE POST-CIVIL WAR PERIOD: 1865-1892

Introduction

The events of the period after the end of the Civil War in the United States, the post-1865 era through the 1890s, were crucial both in the general development of American capitalism and particularly in the domestic iron and steel industry. It was a crucial period because it was then that American capitalism became genuinely industrial, dominated by a capitalist class whose wealth was industrial wealth, characterized by a working class whose labor power, formerly rooted in craft, was utilized in the overseeing of machines; and it was then that the steel industry, upon the basis of the destruction of iron manufacture, emerged as a genuine industry. Internationally, it was also a crucial period since the years 1873-1895 were those of "Great Depression" in the world economy (Beaud 1983, pp. 117-144). The development of the steel industry domestically can be linked to the cauldron of events and processes unfolding at this time on the world stage, especially those concerned with the decline of British hegemony during this "age of imperialism." The years of the first major development of the domestic steel industry, roughly from the end of the Civil War in 1865 to the Homestead Strike of 1892, correspond to those of this "Great Depression" of the second half of the nineteenth century and form the focus of this chapter.

Each at different points in history, the industrialization of the United States and its deindustrialization are related to what Chase-Dunn (1978, p. 110) identifies as a tendency for capitalism, by virtue of its internal logic, to develop from "unicentric" (hegemony) to "multicentric" (equalization) control of markets.¹ Capitalism, then, is predisposed to crises of accumulation associated with the leveling of competitive advantages. The current decline of the American steel industry, the shift of investment out of steel production and into other endeavors, along with resultant factory closures comprising the "deindustrialization wave," are understood within the context of the recession of the 1970s and 1980s. This crisis, generalized across the major world capitalist powers, affected each differently. So, Japan, for example, affected relatively less severely than the United States, has risen to pre-eminence as a world steel producer as the hegemonic position of the U.S. was and is steadily eroded. In the second half of the nineteenth century, the United States rose to pre-eminence as a capitalist power and as a steel-producing power as well during a period of global crisis which also had differential effects on the world capitalist "old guard," such as Great Britain and France, and global "newcomers" such as the United States and Germany (cf. Chirot 1986, p. 244). Thus, the period of British decline was at the same time the period when the United States came into its own as a significant,

¹ The description of the distribution of competitive advantages as "unicentric" and "multicentric" is relevant to a variety of contexts within which capitalist competition takes place--within the world-system between capitalist nation-states, between firms acting on the international level, within nations between regions, and between firms with each other.

industrial capitalist power in the world arena (rising to meet Britain on its way down). As Chirot (1986, p. 203) observes, "as in the case of the British in the nineteenth century, [the United States] has been unable to prevent serious economic rivals from growing." Not only could the United States not prevent economic rivals from growing, but it pursued a trajectory of accumulation which involved investment in the industrial growth of other capitalist nations.

Beaud's (1983, p. 121) assessment of the Great Depression of the 1873-1895 period provides a general guide for explaining and analyzing the conditions within which the U.S. iron and steel industry developed. His identification of important factors contributing to the crisis provides the "sign posts" along which the historical narrative of iron and steel development can be presented. Beaud argues that the 1873-1895 depression, like other capitalist crises, "result from the interaction of four fundamental contradictions." These include, in his terms: (1) "the contradiction between labor and capital, that is, concretely, between capitalist companies and the working classes"--attention to which is fundamental in any analysis of capitalist processes; (2) "the contradiction between capitalists (either in the same sector or between sectors)," where competition both conditions and is conditioned by the extent and intensity of class conflict; (3) "the contradiction between national capitalisms," as an aspect of capitalist competition, between nationally defined segments of the capitalist class, over the establishment of markets for labor and other commodities; and (4) "the competition between dominant capitalisms and dominated peoples, countries, and regions," again as an aspect of the process of market and class formation (Beaud 1983, p. 121). In

essence, the dynamics of class conflict, capitalist competition both domestically and internationally, and imperialism are fundamentally important to understanding and discussing any aspect of capitalist development.

It is with reference to this scheme that the development of the steel industry and the destruction of iron production in the United States will be approached. Therefore, the following issues, particularly important to the emergence of the domestic steel industry, are emphasized: (1) the events surrounding the labor conflict at Homestead, Pennsylvania; (2) the relationship between the iron and steel industry and the railroads and owners of steel capital with each other; (3) the impact of post-Civil War developments upon the supersession of the United States over Britain as an industrial capitalist power; and (4) the struggle between American and British capitalists over control of the United States market. Here, state support for the domestic development of industrial capital in the form of a program of protectionism is understood as a "direct analogue" of imperialism, especially with reference to Britain's scramble for foreign markets (Chirot 1986, p. 85).

Of all of these issues, developments on the front between capital and labor are most important. Beaud (1983, p. 121) points to the relationship between the crisis of 1873-1895 and the intensified resistance of workers to the conditions of capitalist production. During this period internationally, "the working classes organized and asserted themselves and by the end of the period had a discernible effect in the functioning of national capitalisms." It was the period of "affirmation of the working classes" where the "capitalist bourgeoisie had to contend with a working class which was increasingly conscious

of its own position...and finally imposed a new balance of forces" (Beaud 1983, p 125).

In the United States, these international trends in the organization of the working class took form in the establishment of various workers' political organizations, the trades union movement, and strikes which Jeremy Brecher calls the "Great Upheaval" of 1877. Brecher (1972, pp. xxiv-1) describes the post-Civil War depression in these terms:

Depressions had been a regular feature of capitalist society since its start. But by 1877, depression had lasted longer than any time before in American history. For workers, conditions were quite desperate. Wages throughout industry had been cut more than twenty-five percent, below subsistence in many cases, while an estimated one million workers were unemployed.

In the face of such conditions,

July, 1877...marks the first great American mass strike, a movement which was viewed at the time as a violent rebellion. Strikers stopped and seized the nation's most important industry, the railroads, and crowds defeated or won over first the police, then the state militias, and in some cases even the Federal Troops. General strikes stopped all activity in a dozen major cities, and strikers took over social authority in communities across the nation.

The Great Upheaval, insofar as it represented the initiation of worker organization and resistance, was a complementary process to the Depression of 1873-1895.

In post-Civil War America, the political struggle between capital and labor, and the essential "tone" of the Great Upheaval, emerged from this issue of labor-use, described by Brecher (1972, p. 21):

The enormous expansion of industry after the Civil War had transformed millions of people who had grown up as farmers and self-employed artisans and entrepreneurs into employees, growing thousands of whom were concentrated within each of the new corporate empires.

In the steel industry, the Homestead Strike of 1892 represented both the final stage and the final act of resistance to this transformation. The Homestead Strike, as a particular event in the political struggle over labor control and labor use, and its relationship to the destruction of the iron industry, form a particularly important focus of this chapter.

The Civil War and the Issue of Industrialization

My concern in this section is not so much with the Civil War itself as it is with its meaning and impact on the course of capitalist development in America, and ultimately, development of the iron and steel industry. For my purposes, the most important considerations of the war are those that have to do with the political conflict that the war represented and the political-economic conditions that post-war "reconstruction" brought into being, along with their role in development of industrial capitalism in the United States.

The impact of the war on the process of industrialization was not direct. The mobilization for war and war production were no great stimuli to the nation's rate and level of industrialization. In fact, there is some evidence to the contrary, that the war itself actually stifled industrialization (cf. Cochran 1969, p. 140-149).

With regard to the issue of the effect of the war on the industrial development of the nation, Cochran (1969, p. 146) raises the following important general point:

By modern standards the Civil War was still unmechanized. It was fought with rifles, bayonets, and sabers by men on horseback. Artillery was more used than in previous wars, but was still a relatively minor consumer of iron and steel. The railroad was brought into use, but the building of military lines offset only

a small percentage of the over-all drop from the prewar level of civilian railroad construction. Had all of these things not been true, the Confederacy with its small industrial development could never have fought through four years of increasingly effective blockade.

On this same point, Hogan (1971, p. 14) writes:

One might assume that the Civil War would have given considerable impetus to the iron industry of the country, yet this was by no means the case. The industry, located principally in the northern states... depended on the southern states for a relatively sizeable share of its market, and this was lost during the war years. Expansion of the nation's railroads was curtailed and rail demand declined sharply. The market was not replaced as might be expected by war-time activity since the conflict was carried out on a modest scale in comparison with twentieth century wars. In fact, ordnance requirements were so limited that it was not until 1863 that pig iron production recovered to the 1860 level.²

While, directly, the war had little immediate effect on the course of industrialization, it did change the political climate of the nation in favor of the emerging urban industrial capitalist class. If the Civil War

² Cochran argues that according to all indications, the Civil War had the effect of retarding "a curve of production that was tending to rise at a high rate" before the war (1969, p. 142). With specific regard to pig iron production, Cochran (1969, p. 142) relates the following:

Pig-iron production in tons, perhaps the most significant commodity index of nineteenth century American industrial growth, is available year-by-year from 1854 on. Taking total production for five year periods, output increased 9 per cent between the block of years from 1856 to 1860 and the block from 1861 to 1865. That even this slight increase might not have been registered except for the fact that 1857 to 1860 were years of intermittent depression is indicated by an 81 per cent increase over the war years in the block of years from 1866 to 1870. If annual production is taken at five-year intervals, starting in 1850, the increase is 24 per cent from 1850 to 1855; 17 per cent from 1855 to 1860; 1 per cent from 1860 to 1865; and 100 per cent from 1865 to 1870. While there is no figure available for 1845, the period from 1840 to 1850 shows 97 per cent increase in shipments, while for the period 1870 to 1880 the increase was 130 per cent.

in America affected industrialization, it did so for reasons that had to do with the political assertion of the interests of industrial/wage-labor capital over those of agricultural/slave-labor wealth, both of which by mid-century were locked in bitter competition for dominance over control of the state to advance those interests. The most important aspect of the war was that it represented a change in the "tone" of the American economy that is, its industrialization. Northern victory represented in essence the political victory of the industrial capitalist class over the "southern slave owning oligarchy" for undisputed hegemony within the domestic economic order (Baran and Sweezy 1966, p. 252) and for the right to call on state power for security in the international context.

The Civil War and Nation-Building: From "King Cotton" to "The Gleaming Metal on Which American Settlement Advanced"

An examination of the interests of Northern industrial capital and Southern planters reveals where those interests collided. In general it can be said that the interests of these two major factions within the domestic owning class were not split over the issue of slavery. Baran and Sweezy's (1966) work as well as the works of others (cf. Bogart 1930; Beard and Beard 1960; Cochran 1969; and Moore 1966, to name a few) argue convincingly that the "point" of the Civil War was not the abolition of slavery, but that "the abolition of slavery was a by-product of the struggle, not its purpose" (Baran and Sweezy 1966, p. 252). The conflict between "free states" and "slave states" was in actuality a conflict between states where wealth accumulation was based on the exploitation of "free" or wage labor with those

where wealth accumulation was based on the exploitation of slave labor. In one sense the Civil War can be viewed as a conflict between owning factions, each aspiring to control regionally discrete "economies" existing within the same nation and struggling over rights to create the nation-state in their own image.

In fact Barrington Moore, Jr. (1966, p. 114) asks: "Slave societies do not have the same political form as those based on free labor. But...is that any reason why they have to fight?" In general, his answer to this question is "No, they do not have to fight." Kaufman (1982, p. xxv) comments:

If there is any agreement among those writing on antebellum history, it is that the Civil War was not the result of inexorable economic forces. The tariff, a national bank, a national transportation system, and other matters were all negotiable if the party system had been capable of managing the conflicting interests and achieving a workable national unity.

In fact, there is no inherent inconsistency between a slave agricultural and a wage-labor industrial economy. In the early stages of industrialization in America, which was fueled by the growth of the domestic textile industry, northern industrialists benefited from the southern market for finished products as well as from the source of cheap cotton that the southern agrarian economy provided.

Moore continues (1966, p. 114, emphasis added):

One might start with a general notion to the effect that there is an inherent conflict between slavery and the capitalist system of formally free wage labor. [However,...cotton produced by slave labor played a decisive role in the growth not only of American capitalism but of English capitalism too. Capitalists had no objection to obtaining goods produced by slavery as long as a profit could be made by working them up and reselling them.

There is no inherent conflict between slavery and wage-labor systems of production. However, at a time when it was in the interests of Northern industrialists to challenge the power of southern plantation owners, ideological appeals to the abolition of slavery were made. "As long as the South had this rich source of cheap labor, its interests [through the state] would be served" (Smith 1981, p. 336).³ The Civil War and the reconstruction period represent the processes of political-economic transformation from the domination of agricultural capital served by industrial capital to the domination of industrial capital served by agriculture.⁴

³ Smith (1981, p.337) goes on to elaborate the ideological use of abolitionism in the struggle between industrialists and slave owners.

It was in the material interest of northern industrialists to break the power of southern planters and agriculturalists. Ready to use in the struggle were the northern businessman's set of ideas and beliefs. A free contract freely entered into by two equal human beings was their notion of how they were doing business. If they then used this ideology to discredit the South, it was all the better for unfree workers who had been oppressed by that very "peculiar" institution of slavery.

⁴ Genovese's (1961, p. 159) comparison of this period to the lessons of modern colonialism is insightful.

If there is one lesson to be learned from the experience of both developed and undeveloped countries, it is that industrialization is unthinkable without an agrarian revolution which shatters the old regime in the countryside. While the peasantry remains tied to the land, burdened with debt, and limited to minimal purchasing power, the labor recruitment and market preconditions for extensive manufacturing cannot emerge. "Land reform"--that is, agrarian revolution--constitutes the essential first step in the creation of an urban working class, the reorganization of agriculture to feed growing cities, and the development of a home market.

If, as according to Barrington Moore (1966, p. 136), it is correct to regard post-Civil War sharecroppers as a class of peasants in American society, then the Civil War, in a very real sense, was just such an

If, as has been effectively argued by various writers, the war was not essentially fought over the issue of the abolition of slavery, a stronger interpretation of the meaning of the war can be developed by looking at it from the point of view of capitalist competition--in particular, competition over markets and rights in the state to create conditions conducive to particular forms of production. From this point of view, the Civil War can be viewed in two complementary ways: as a political conflict between northern industrial wage-labor capital against southern slave-owning landed wealth, and as a war of American industrial capital against British industrial capital.

In pre-Civil War America, "different kinds of capital came to dominate the different geographical regions of the country" (Smith 1981, p. 143)--plantation capital in the South, industrial capital in the North, and in the expanding West, non-slave-owning landholders.⁵

agrarian revolution in American history. Also, here, the term "agrarian revolution" is what is essentially meant by the term "Reconstruction," a term used in traditional accounts of the post-war period.

⁵ Since, by the outbreak of the war, Western landowners had entered into an alliance with Northern industrialists against Southern slaveholders, I will not discuss the history of the Westerners' demands on the state. Suffice it to say that Western agricultural influence had begun to wane since the end of the Jacksonian era. Moore (1966, p. 115-116) states,

The expansion of the country westward made it seem for a moment, under President Jackson in the 1830's, that the principles of agrarian democracy, in practice an absolute minimum of central authority and a tendency to favor debtors over creditors, had won a permanent victory....Even in Jackson's own time, however, agrarian democracy had severe difficulties. Two closely related developments were to destroy it: the further growth of industrial capitalism in the Northeast and the establishment of an export market for Southern cotton.

Each kind of capital and therefore each geographical region required different federal-level state policies. The interests of Southern planters and Northern industrialists, by virtue of the contradictory nature of their respective forms of property ownership, differed with respect to the issue of the organization of relations to domestic and foreign markets.

According to Parker (1969, p. 136):

The industrializing regions at this time had two major needs: sufficiently large markets to permit economies of scale in transport and urban services, and sufficient saving to permit the use of resources in building canals, rail lines, cities, plants, and equipment.

For Northern industrialists, this meant the complete integration of the national market through the proliferation of railroads and, especially, through the building of the transcontinental railroad. In addition, Northern industrial capitalists had pushed for the establishment of a Federal Reserve System which would facilitate saving and mobility of finance capital.

In addition to conflicts over the domestic economic situation, Northern industrialists and Southern planters differed over the national economic relation with Britain. Britain was the South's most important export market for cotton. Britain, with its highly developed textile industry, was not only the biggest competitor of such domestic manufacturing centers as Lowell, Massachusetts, and Manchester, New Hampshire, but it was the favored customer of Southern raw cotton

Western landowners had allied themselves with industrialists against Southern slave owners who were interested in expanding the plantation economy westward and bringing western lands under cotton production in the wake of the Mexican American War.

producers. Barrington Moore, Jr. (1966, p. 116) illustrates this point as follows:

By 1849, sixty-four percent of the cotton crop went abroad, mainly to England. From 1840 to the time of the Civil War, Great Britain drew from the Southern states four-fifths of all her cotton imports.

American manufacturers were on the periphery of the plantation economy. Their position was such that in supplying finished products to agriculture they supported Southern planters in their dealings with Northern industry's biggest competitor.

If Northern industrial capitalists hoped to escape the influence of Southern power in the domestic economy, they not only needed domestic conditions conducive to interstate investment and trade, but they needed protection by the state from the influence of British capital in the domestic market. Southern planters resisted the implementation of any of the aforementioned policies. With particular regard to the issue of market protection, Bogart (1930, p. 483) observes:

The planting economy was based upon territorial specialization, which involved exchange with other regions. It was to their interests to have complete freedom of trade, and after 1816 they consistently opposed the policy of protection advocated by the growing manufacturing interests of the north.

Secession of the Southern states was followed by war when growing influence of the Northern states in the federal government eroded the ability of Southern representatives to advance the interests of the plantation economy.

The formation of the Confederacy represented the withdrawal of a national elite faction from one nation-state where competition with an emerging industrial elite was becoming more and more difficult in

order to form an independent national system which would see to the support of the plantation economy (hopefully with the support of Britain). The relationship between Southern planters and British industrialists was of such significance that it is no wonder that the Union's most important strategy in fighting the war was the establishment of a complete naval blockade of Southern states' access to Atlantic shipping routes.⁶

Reconstruction was, in essence, the process of rebuilding the post-war nation in favor of industrialization and the demands of the interests of industrial capital. The war was followed by a massive wave of urbanization in the northern and, to some extent, in southern states. This, along with new immigration legislation, propelled the process of proletarianization through the nineteenth and early twentieth centuries. In addition, the economic landscape of the nation was re-created as industrial promoters began to "Bring the mills to the cotton!" and Birmingham, Alabama, became "the Pittsburgh of the South" (Beard and Beard 1960, p. 286).

Among the greatest achievements on behalf of industrial capitalists of the post-war period was the establishment of the Federal Reserve System, the approval and building of the Transcontinental Railroad, and the implementation of effective measures of protection against competition from British industry. Among those who stood to benefit the most from these measures, especially in land grants for railroad building and in protection from imports of cheaper British

⁶ In one sense, the establishment of protectionist policies in the post-war period represent the peace-time extension of the military strategy of blockade.

manufactured goods, were "crucial segments of Northern Society" (Moore 1966, p. 143), including railroad companies and the iron and steel interests of Pennsylvania. In the three years immediately following the war, 1865-1868, railroad interests and iron and steel manufacturers wielded a great deal of influence in the government, and through their representation by the group of Radical Republicans, "mounted an offensive against the plantation system" (Moore 1966, p. 142) and, in their support of import regulation, defense of the home market.

An important step in forming the steel industry was the securing of the domestic market from incursions of British capital in the post-Civil War period. Whether or not the American market would be primarily an outlet for British exports, or a market under the control of domestic iron and steel producers, was, for a time at least, something of an open question. Winning control of the domestic market was a precondition to the formation of the American industry, and this in turn would have a strong influence in its subsequent development. Thus, the establishment of protectionist policies in law was a direct extension of pre-war designs of an emerging industrial capitalist class in the United States and was born of the "free trade" versus tariff debates which dominated political economic discourse (cf. Kaufman 1982).

The Issue of Protectionism in General in the Nineteenth Century

The United States was important to British capitalists in the 1800s for two essential reasons. The United States was an important foreign market for British goods. In fact, Britain's well-being as a

capitalist industrial power was tied closely to its ability to control foreign markets. This is a fact noted by Eric Hobsbawm in his work, Industry and Empire (1969, p. 136, emphasis added):

In the major industries the foreign market played...[a]...decisive role. This is most obvious in cotton, which exported over half the total value of its output at the beginning of the nineteenth century and almost four fifths at the end, and iron and steel which relied on overseas markets for about forty percent of its gross production from the mid-nineteenth century.

With particular regard to the relationship between Britain and the United States, Potter (1969, p. 15) notes the central "importance to Britain of American supplies of primary produce," such as cotton and wheat, and "the significance for British producers of American markets."

Besides the importance of America as an outlet for British goods, control of the American market was viewed by British manufacturers as vital in impeding the assertion of an American capitalist class increasingly growing in strength. Control of the American market was necessary to keep American capitalists out of competition with the British, since at this time, the U.S. was emerging not only by itself but along with a competing group of capitalist industrial powers, e.g., Germany. Essentially, the rise of the American industrial capitalist class was threatening to undo British control of the United States market, re-established with the end of the War of 1812. With the Treaty of Ghent of 1815, "Cheap British manufactured goods soon strangled the infant American industries and created economic havoc" (Kaufman 1982, p. 41).

In this period and within the context of international capitalist competition, economic interests and political rivalry (i.e., rivalry

between nation-states) became mutually identifiable. This is what is most significantly meant by the description of the period as the "age of imperialism," the integration of state and economic policy. Hobsbawm comments (1969, p. 131, emphasis added):

One further consequence of the era of the Great Depression, that is of the emergence of a competing group of industrial and economically advanced powers, must be noted. It is the fusion of political and economical rivalry, the fusion of private enterprise with government backing, which is already visible in the growth of protectionism and imperialist friction. Increasingly business, in one way or another, called on the state not only to give it a free hand, but to save it.⁷

If this was true from Britain's point of view, it was equally true from the point of view of American capitalists in general and those

⁷ The meaning of imperialism as the integration of state and private enterprise interests is evident in, and starkly illustrated by this quote from Cecil Rhodes (1895) provided by Beaud (1983, p. 139):

I was in the East End of London yesterday and attended a meeting of the unemployed. I listened to the wild speeches, which were just a cry for "bread," "bread," and on my way home I pondered over the scene and I became more than ever convinced of the importance of imperialism....My cherished idea is a solution for the social problem, i.e., in order to save the 40,000,000 inhabitants of the United Kingdom from a bloody civil war, we colonial statesmen must acquire new lands for settling the surplus population, to provide new markets for the goods produced in the factories and mines. The Empire, as I have always said, is a bread and butter question. If you want to avoid civil war, you must become imperialists.

And, further, from Jules Ferry: "Colonial policy is the daughter of industrial policy" (from Beaud 1983, p. 140).

Imperialism represents the unity of state policy and national capitalist class interests. This unity is expressed not only in state policies concerning dominated areas, but also in state policies relevant to the establishment and protection of domestic markets. State policies both advance capitalist interests in the establishment of markets, and in the protection of markets from the advances of foreign capital.

engaged in iron and steel production in the second half of the nineteenth century. Both British capitalists and American capitalists were calling on their governments to save them. The former sought state policies which supported international "free trade" and made empire a "bread and butter" issue. The latter called upon the state to support the protection of the expanding domestic market from foreign control. Here, "free trade" is understood as a state policy and an ideology of a national capitalist class interested in maintaining hegemonic domination of foreign markets by establishing an environment wherein comparative advantages can be readily asserted. Protectionism, on the other hand, reflects a national capitalist class aspiring to hegemony by creating an environment wherein its weaknesses or disadvantages can be counteracted. Potter (1969, p. 48) states the following concerning the importance of the issue of protectionism in the middle of the nineteenth century:

The imposition of the highly protective tariff of 1864, more than any other single act, announced the severance by the U.S.A of her ancient commercial links with the old world and constituted a declaration of American economic independence.

In the arena of international capitalist competition, the confrontation of American and British capitalist interests is evident in the following statements cited by Hogan (1971 p. 173, emphasis added).

First, from Lord Brougham's (1816) speech to Parliament:

It is well worth while to incur a loss upon the first exportation, in order by the glut to stifle in the cradle those manufacturers in the United States which the war has forced into existence contrary to the natural course of things.

Secondly, and closer to the period under discussion, in a report of a British Parliamentary Commission in 1854:

The labouring classes generally, in the manufacturing districts of this country and especially in the iron and coal districts, are very little aware of the extent to which they are often indebted for their being employed at all to the immense losses which their employers voluntarily incur in bad times in order to destroy foreign markets....The large capitals of this country are the great instruments of warfare against competing capitals of foreign countries, and the most essential instruments now remaining by which our manufacturing supremacy can be maintained. (Emphasis added.)

American supporters of protectionism turned to statements such as these in arguing for establishment of tariffs which they considered necessary in order to neutralize aggressive policies of British firms. Those arguing on behalf of protectionism also claimed that British designs on the American market led to the "degradation of the British workingman" and cited various studies by British commentators pointing to increased "pauperism in England" (Hogan 1971, p. 173-174).⁸

Protection of the American Iron and Steel Market: The Morrill Tariff

The Morrill Tariff, established in 1861, set import duties on iron products. These were: for pig iron, \$9.00 per ton; for iron rails, \$12.00 per ton; and, in 1862, the rate for iron rails was raised to \$13.50 per ton (Hogan 1971, p. 174).⁹ American manufacturers,

⁸ A further example of this is the following cited by Hogan (1971, p. 174). Supporters of protectionism cite a May 29, 1875, article which appeared in London Iron which found that women worked "unceasingly at the forge twelve or thirteen hours a day for from six shillings to seven shillings a week."

⁹ Moore (1966, p. 150) states,

The Morrill Tariff of 1861 was the beginning of a sharp upward climb in tariff rates from 20 percent of value to 47 percent, more than double the rates prevailing in 1860. Designed at first to raise revenues for the wartime Union treasury, it established protectionism deeply in American economic policies.

citing information from British sources which showed that British imports had increased since 1866 at the same time that American production decreased, called for higher tariffs in 1867.¹⁰ The American Iron and Steel Association assessed the situation this way:

The steel manufacturer is suffering severely from the effects of foreign competition, the importation last year amounting to 21,308 net tons, about 53 percent of the quantity consumed in the country. Our steel works, as well as our iron works have ample facilities for supplying the demand for their products and it is without doubt, the policy as well as the duty of the Government to give them an opportunity to do so.¹¹

In 1871, a new tariff was established; however, contrary to the desires of American manufacturers, it set a reduced rate on imported pig iron to \$7.00 per ton. In their Annual Report for 1871, the American Iron and Steel Association called this measure "unwise, and injurious to the general interests of the country" (Hogan 1971, p. 174). In this same report, the Association continued to argue that the government's duty was to establish and maintain protectionist measures and added that ineffective tariffs would necessitate industrywide reductions in order to prevent,

Hundreds of thousands of workingmen...[from] being thrown into idleness or into agriculture, thus overstocking the markets for

¹⁰ British imports in 1866 were 312,500 net tons of iron and steel combined. In 1867, British Board of Trade information showed that imports into the U.S. had increased to 433,724 net tons of iron and 21,308 net tons of steel (Hogan 1971, p. 174).

¹¹ This statement is from the Annual Statistical Report for 1867 quoted in Hogan (1971, p. 174). It is a comment by American steel manufacturers concerning not only the perceived condition of American production in the face of competition from Britain but demonstrates as well the ideological reliance on competition by certain segments of the capitalist class in the justification of the unity of state policy and economic interest.

farm products, and leaving the country to the mercy of foreigners for needed supplies of manufactured goods. (Quoted in Hogan 1971, p. 175.)

However, by 1872 it became apparent to supporters of protectionism that even the lower rates were adequate to "preserve the major portion of the domestic market to the American producer" (Hogan 1971, p. 176). The manufacturers themselves confirmed this assessment in the 1872 Annual Report of the American Iron and Steel Association which contained this resolution:

RESOLVED--That this Association attributes the general prosperity of the iron trade of the country to the tariff policy of the Government, which has fostered home industry and enabled many branches of manufacturers to attain a position rendering them independent to foreign rivalry. (Quoted in Hogan, 1971, p. 176).

The growth of the American iron and steel industry from 1860 to 1880 was closely tied to the expansion of the railroads and the market for rails. Among construction, machinery, shipbuilding, agriculture, oil and gas, and the container industry, the railroads stood out as the foremost steel consuming industry. Railroad expansion occurred rapidly in the period following the Civil War, marked especially by the completion of the transcontinental railroad in 1869. In the decade from 1870 to 1880 there was a 75 percent increase in railroad mileage from 52,922 miles to 93,267 miles. Throughout the 1860s rails were made primarily from iron. In the 1870s the demand for steel rails, for new lines and to replace iron rails, increased. In the United States, "virtually all Bessemer steel produced...was converted into rails" (Hogan 1971, p.114).

The importance of steel rail production to the accelerated growth of the United States steel industry is illustrated by a particular

example from Matthew Josephson (1962, p. 109) concerning Andrew Carnegie's "flagship" rail rolling facility, the Edgar Thomson Works, established in 1875:

With inimitable tact Carnegie decided to name the mills after his largest prospective customer, the head of the Pennsylvania Railroad, the "J. Edgar Thomson Works."

Great Britain began exporting steel rails into the United States in 1862 for the Pennsylvania Railroad. With the discovery of a source of iron ore suitable for the production of Bessemer steel in 1867, near Steelton, Pennsylvania, large scale production of steel rails in the U.S. became possible. "The Pennsylvania Steel Company was organized there to build a Bessemer plant. The Pennsylvania Railroad subscribed to a little more than one third of its capital stock" (Hogan 1971, p. 115).

The demand for steel rails was great, but it was also subject to severe fluctuations as periods of rapid railroad expansion were followed by periods of slowdown. Steel producers rushed to supply the market, making for a very unstable and intensely competitive situation.¹²

¹² The instability of the rail situation and its relation to trajectory of steel industry development is illustrated in the following from Michel Beaud (1983, p. 118). First,

In the United States the length of completed railroad lines increased by 50 percent between 1869 and 1873; when speculation, scarcity of labor power, and a rise in prices combined, profitability fell, railroad companies went bankrupt, banks failed, and there was a frantic stock exchange panic. Since railroad construction was an essential outlet for the production of cast iron, the price of cast iron fell by 27 percent between 1872 and 1875. Unemployment rose, wages fell, and the crisis reached textiles and the building trades. In England exports fell by 25 percent between 1872 and 1875; the number of bankruptcies increased (7,490 in 1873, 13,130 in 1879); unemployment

While domestic steel producing capacity expanded to meet the demands of the railroads, it remained necessary for some years to supplement domestically produced rails with British imports (Hogan 1971, p. 113). But in the early 1870s, American manufacturers began to call for the establishment of tariffs against the importation of British imported steel--much as they had done earlier against the importation of British iron--which at that time could be produced at lower cost than American rails.

From 1867 to 1870 there was a decline in the price of British steel rails at American ports. American steel manufacturing interests urged Congress to increase the duty on steel imports and claimed that British producers were manipulating prices in an attempt to interfere with the production of steel rails by American firms. On January 1, 1871, the duty was set at \$28.00 per ton. With this, the production of

extended and prices fell. Surplus production capacities were enormous: while forge owners in 1873 were able to produce 2.5 million tons of rails, consumption fell to 500,000 tons and their price dropped by 60 percent between 1872 and 1881.

Secondly,

[By 1884] The construction of railroads in the United States, which had in fact started up again (4,300 km in 1878, but 18,600 km in 1882), gave way to the "railroad panic": only 6,300 km of railroad lines were constructed in 1884. The railroad companies were caught between rising construction costs and the competition they engaged in among themselves. The price of Union Pacific stock collapsed, and this was followed by the collapse of several other railroad securities. Banks failed and there was a slowdown in industrial activity, with bankruptcies, more unemployment, and wage reductions (from 15 to 22 percent in metallurgy, from 25 to 30 percent in textiles). During this crisis the Carnegie group grew stronger, particularly through purchasing competing factories at low prices.

steel rails, which was negligible prior to 1870, increased by 100 percent (Hogan 1971, p. 178).¹³

From 1879 to 1880, vast increases in railroad production would necessitate an increase in imports and, during the same period, prices for domestically produced rails would increase. But the protectionist policies concerning steel rails, along with decreasing prices for basic steel products due to the "economizing movement" of steel companies in the last three decades of the nineteenth century, vastly improved the situation of American steel firms (Hogan 1971, pp. 178-179). Clearly, the protectionist measures urged by steel manufacturers in the post-Civil War period established the American steel market as the domain of American firms, and, by limiting the role of British suppliers, had an influence on the formation of capital in America around the production of steel.

The Transition from Iron to Steel Production and the Confrontation between Labor and Capital

With the domestic market secure for American producers, the United States steel industry came into its own and eventually surpassed Great Britain's by the last decade of the century. The turning point was the year 1890 when "the U.S. had passed England--

¹³ Domestic steel rail production for 1871 was 38,500 net tons; for 1872, 94,070 net tons; for 1874, 144,944 net tons; and, for the period from 1875 to 1878, production doubled to 1.5 million tons. There was a parallel decline in imports for the same period. For example, imports for 1872 were 149,786 net tons; for 1874, 100,486 net tons; and between 1875 and 1878, there were less than 18,000 net tons imported (Hogan 1971, p. 178).

permanently" in the production of steel ingots.¹⁴ The period from the late 1880s through the 1890s was a period of intensified transition from iron to steel production, and therefore a period also of dismantling iron facilities. Brody (1960, p. 8) gives the following brief account exemplary of trends growing in strength in the last twenty years of the nineteenth century:

The course of the Republic Iron and Steel Company, a merger of twenty-seven iron mills with a capacity of over a million tons indicated the extent to which puddling [the craft of stirring molten ore into wrought iron] seemed inconsistent with prosperity. The company, shortly after being formed in 1899, began abandoning the iron mills, erecting in their stead a large steel plant at Youngstown.

Companies pursuing so-called economizing efforts were making the transition to steel production at a rapid pace. In general, productivity was rising as a consequence, at the same time that downward pressure on wages was becoming more apparent. Here are two brief examples of this trend, both from information on the Cambria Steel Company (a non-union firm). A "laborer first class" (unskilled occu-

¹⁴ The following figures comparing production of steel ingots for each nation (000,000 tons) are quoted by Burn (1961, p. 82), from the Report of the Tariff Commission.

For the United Kingdom: in 1889 production was 3.57; 1890, 3.58; 1893, 2.95; 1894, 3.11; 1895, 3.26; and in 1896 production was 4.13 hundred thousand tons.

For the United States: production was in 1889, 3.39; 1890, 4.28; 1893, 4.02; 1894, 4.41; 1895, 6.11; and, in 1896, 5.28 hundred thousand tons.

In this transitional year of 1890, Carnegie also was successful in preventing the organization of the Duquesne works by the Amalgamated Association of Iron and Steel Workers. Also, 1892 was the year when for the first time domestic production of steel surpassed that of iron. It was also the year of the Homestead Steel Strike.

pation) working at a blast furnace earned, for a twelve hour day, \$1.10 in 1880, \$1.04 in 1885, \$1.00 in 1890 and 1895. A "rail mill roller" (skilled occupation) earned, per hundred tons, \$6.10 in 1880, \$4.23 in 1885, \$4.61 in 1890, and \$3.18 in 1895.¹⁵

The shift from iron production to more mechanized steel production was cheapening both skilled and unskilled labor as it progressively undermined the necessity of each. This process was embedded in and intensified by the dismantling of iron works. Skilled labor was cheapened not only because mechanization was making it less vital to production, but because the dismantling of iron works was releasing a surplus of labor to the labor market.

Certainly, the transition to steel production brought with it changes in the nature of labor-use. For instance, Brody (1960, p. 8) states:

The largest iron producer, Jones and Laughlins, had operated 110 puddling furnaces. In 1884 the firm built a five ton converter, then two more in 1890, and began reducing its iron production. It closed down thirty-three furnaces in February 1892 because iron was being "crowded out." Its employees were advised to seek work elsewhere. Soon after, the Carnegie Company began shutting down its eighty four furnaces. The basic steel companies, all iron manufacturers in 1890, employed hardly a puddler among them in 1900.

¹⁵ These figures are from Report on Immigration, VIII quoted in Brody (1960, pp. 44-45). Brody (1960, p. 45) states that "wages declined under the pressure of mechanization."

Iron Production and Labor Organization: Craft, Craft Unionism, and the Formation of the Amalgamated Association of Iron and Steel Workers

The Amagamated Association of Iron and Steel Workers had its origins in the period when iron production was predominant and steel was produced on a very limited basis. Politically, the organization viewed itself, as did other craft unions, as an association of craftsmen bound by tradition and whose influence was felt to rest on the possession and control of scarce knowledge and skills. In this case, such skills were those connected with the production of wrought iron. The nature of the production of wrought iron was such that attempts to mechanize it were largely unsuccessful, demonstrating its dependence on highly skilled labor. The technical problems of iron production prevented the establishment of "economies of scale" since the "character" of the material itself limited the size of puddling furnaces and required a great degree of direct manipulation on the part of the workers. Iron production was highly resistant to mechanization and strongly tied to craft labor.¹⁶ In the production of iron,

The procedures were entirely manual. The puddler agitated small batches of molten pig iron and cinder until the purified metal crystallized into balls--"coming into nature," it was called. The succeeding squeezing and rolling operations were likewise manual (Brody 1960, p. 8).

¹⁶ In his The Iron Puddler: My Life in the Rolling Mills and What Came It, Davis (1922, pp. 30, 91, and 110-111) describes the craft of the iron puddler. Trade secrets were passed on from father to son as "a legacy of great value, and were never told to persons outside the family." He calls the craft a "mental act," one of "good guessing," where the "artist and sculptor must have the same sense of proportion." It was this highly intuitive nature of iron puddling which required the experience of the artisan that made the process resistant to mechanization. (James J. Davis was later to become Secretary of Labor in the Harding Administration.)

So, these skilled laborers, using the facilities of the capitalist, maintained considerable control over the process of production because they possessed the "recipe" for producing iron and, through their organizations, had control over access to that knowledge, and some influence as to how it was to be utilized.

Up until about the 1890s, wages were paid according to a tonnage rate where skilled workers were paid according to output on a sliding scale. That is, wages for skilled labor were set according to the market price for iron, fluctuating at or above an established wage floor. For example, the sliding scale rate for puddling in 1865 was \$4.00 to \$9.00 per 2,240 pounds of purified iron "as the price of iron went from 2 1/2 cents to 8 1/2 cents per pound" (Hogan 1971, p. 85).

The sliding scale and the tonnage rate should not be confused with what we would today call "piece work" since the sliding scale was also attached to a "contract system," where employers were in effect "contracting out" jobs to skilled craftsmen for a price set by the market.¹⁷ Katherine Stone comments as follows (1974, pp. 117-118, emphasis added):

The sliding scale was actually an arrangement for sharing the profits between two partners in production, the skilled workers and the steel masters...[where] the division of labor and the pace of work was decided by the workers themselves. Thus, the

¹⁷ This reflected, as Ware (1924, p. xiv) points out, the terms of a labor contract where,

...renumeration of the [skilled] mechanic was 'price'. It referred to his product rather than to his labor, for it was his product that he sold....The term 'wage' that [eventually] displaced 'price' as the Industrial Revolution advanced had formerly applied only to day labor, and the extension of the term to the skilled worker was regarded by him as a symbol of a deeper change.

sliding scale and the contract system defined the relationship between capital and labor in the nineteenth century.

The sliding scale and the contingency of wages on market price reflected among these skilled workers a feeling of partnership between capital and labor (cf. Ware 1924, pp. xviii-xix and Bridges 1986, p. 159). This feeling of partnership was reciprocated by capitalists, at least during the period when production and therefore accumulation depended on skilled labor. In his Autobiography (quoted by Stone 1974, p. 117), Andrew Carnegie said about the sliding scale arrangement: "It is the solution to the capital and labor problem because it really makes them partners--alike in prosperity and adversity."

Further evidence of the influence that skilled laborers had over the production process is found in the arrangement where puddlers and those in other skilled occupations had discretionary power in hiring their own unskilled help, who were not paid by the tonnage rate, but by the day. Unskilled workers would be paid out of the wages of skilled workers (and sometimes the company would add an increment to the pay of unskilled workers) (Montgomery 1976, p. 488). So, for example, in Pittsburgh in 1878, a puddler received \$5.00/ton and out of this paid a helper 1/3 with an additional 5% paid by the company (Hogan 1971, p. 85).

The labor force in the industry was divided into a two-tiered structure of highly skilled and organized craftsmen on the one hand, and unskilled, unorganized wage-laborers on the other. When companies became interested in undermining the influence of unions in the transition from iron to steel production, they could pit unskilled

labor against skilled labor, as for example, in the Wheeling Strike (to be discussed below).

Early labor organization was of skilled workers on a highly localized basis and centered on issues connected with tonnage rates. One of the earliest conflicts took place in 1842 when boilers in Pittsburgh rolling mills staged an unsuccessful strike against wage cuts. Hogan (1971, p. 85) states:

At the beginning of that year, wages paid for boiling were \$5.50 per ton, with \$3.50 paid for puddling. This represented a substantial reduction from 1837 levels when boilers received \$7.00 per ton and puddlers \$4.25. The strike, called in February, 1842, which followed a further reduction in boilers' rates to \$5.00 per ton, lasted until July 9 of that year when workers conceded.

In subsequent years, skilled workers in the iron trade began to form craft associations. Their purpose was to formalize relations between skilled workers and the mills. One of the more successful of these associations was the Sons of Vulcan, established in secrecy in 1858 by Pittsburgh iron puddlers. "By 1876, the Sons of Vulcan had become one of the strongest unions in the United States" (Hogan 1971, p. 86). The most significant accomplishments of the Sons of Vulcan included: successful resistance to wage-reductions in the face of pressure created by the post-Civil War Depression; formal adoption of the sliding scale itself, for the first time in Pittsburgh according to the Memorandum of Agreement of 1865 (the sliding scale would eventually be accepted on an industrywide basis); and recognition of the union throughout the iron puddling trade (Hogan 1971, p. 86; Stone 1974, p. 117; and Brooks 1940, p. 21).

Other of the more prominent craft-oriented labor unions established in the mid-1800s included the following: first, in 1861, the Associated Brotherhood of Iron and Steel Heaters, Rollers and Roughers was formed by rollers in the rail mills of Chicago. Brooks (1940, p. 22) observes:

During the 'sixties, locals were established in other iron centers, and in 1872 the union extended its jurisdiction to other rolled products in addition to rails....[And, in] 1875...a lodge [was] established in Pittsburgh.

Secondly, the Iron and Steel Roll Hands of the United States was formed in Chicago in 1874. This union was unique since it organized not only skilled workers, but all workers around the rolls, including unskilled workers (Hogan 1971, p. 88).

In 1876 these three unions, along with the United Nailers of America, were consolidated into the Amalgamated Association of Iron and Steel Workers. Hogan (1971, p. 89) comments:

At the time the Amalgamated Association was formed the steel industry was still poised on the threshold of its development, the Amalgamated Association was almost exclusively an iron workers union with 85% of its total membership coming from the Sons of Vulcan.

Wheeling, West Virginia, and Homestead, Pennsylvania: Capital's Victory over Labor in the Transition from Iron to Steel Production

The Wheeling Strike of 1885-1886 and the Homestead Strike of 1892 are significant events in the history of the development of the steel industry. The importance of each lay in what they represent of the changing nature of relations between capital and labor since the late 1870s and the implications they hold for subsequent development of the industry for the remainder of the nineteenth century.

In one sense, the strikes are manifestations of the struggle between labor and capital over control of the production process, i.e., the craft and skill of the laborer against the progressive mechanization and centralization of steel production. In another sense, the strikes represent events expressing the desire of capitalists to free themselves from dependence on craft labor in order to build a degree of predictability and control over the process of production within the very volatile climate of capitalist competition and market relations at the time. From the 1870s to the end of the century, discretionary control over production passed into the hands of capital. For capital, gaining control over production, "dealing labor out" of decision making over the production process, was a precondition to getting control over markets through centralization and concentration. Labor power in the form of craft as a scarce commodity was increasingly converted to a more readily available and replaceable commodity.

In essence, the problem for capital was the transformation of its labor force from one suited for the production of iron to one suited for the production of steel. The transition of capital from iron production to steel production necessitated the conversion of the iron producing labor force into a steel producing labor force, amounting to the conversion of a craft labor force to a progressively non-craft, i.e., deskilled labor force. The Wheeling and Homestead strikes are events in the political struggle over this transition.

The Wheeling Strike of 1885-1886: Craft as Political Power and its Circumvention in the Transition to Steel Production. The traditional

basis of worker political power in the iron industry was the control that workers held over the craft of iron production. Control over skills could be translated into rights over the process itself; rights, that is, relevant to decision making over various aspects of production including output, pace of work, and quantity of labor, among other things (cf. Montgomery 1976, p. 488). The relationship between capital and labor was embedded in an ideology of partnership between direct producers and owners of the means of production. The Wheeling Strike of 1885-1886 and the Homestead Strike of 1892 demonstrate the operation of forces that were changing the relationship between capital and labor, manifested as it was in conflicts between the unions and mill operators. The owning interests were becoming decidedly anti-union as the shift from iron to steel offered them a way to break their dependence on skilled labor and gain unshared control over production, and in so doing put themselves in a better position to wrest control of markets. The events that took place in Wheeling from 1885-1886 stand as an example, or as a prelude, to the fall of craft unionism and the erosion of labor's political power in the transition from iron to steel.

The Wheeling Strike involved a conflict between nailers, puddlers, and mill operators in the district which led the nation in output of wrought iron nails. In Wheeling (Hogan 1971, p. 228):

Nailers held an enviable position....Like their community standing, their earnings were high for, during the 1880s under a contract wage system, a nailer made \$12 to \$20 per day. A skilled craftsman with carefully guarded trade secrets, he seldom, if ever, performed the manual operations connected with nailmaking, but rather, subcontracted these to a group which he supervised. Contract workers received substantially

less than a nailer; a feeder for example, who worked under him on a percentage basis, received about \$2 per day.

Companies in the Wheeling district began to produce nails from steel, and in the process closed down many of the puddling furnaces. Puddlers, as the most influential craft group within the Amalgamated Association, wanted the wage scale increased by 20% for producing steel as opposed to wrought iron nails. Their argument was that steel was a harder material than iron; therefore, the process of nailmaking had become more difficult. Hogan points out that the puddlers in the union advanced this argument in an attempt to discourage steel production and encourage a return to iron production (1971, p. 228). Apparently, the tactic was to use the wage scale for nailers to make steel fabricated nails less economical (or at least to make it as costly as making nails from iron). The nailers, however, were against this since they believed that such a demand would prompt an unnecessary confrontation with mill interests.

The nailers paid the heaviest per capita dues in the Association and received small recognition in the union councils and the distribution of offices. Rather than risk their industry position to protect the jobs of the puddlers, the nailers withdrew from the Amalgamated Association by June 1, 1885, and revived the United Nailers of America (Hogan 1971, p. 228).

With the wage scale agreement due to expire, the mill concerns proposed a reduced scale for 1885-1886, claiming that this would allow the resumption of iron puddling in competition with steel. Either way the mills would win since the wages of puddlers would have to come down to compete with less expensive steel-produced nails. The lower scale was rejected and the Amalgamated Association proposed higher rates for certain other trades.

In their dealings with the nailers, the companies sought a reduction of rates from 21 cents to 19 cents per keg of common nails, arguing that the nailers in the eastern mills, which were largely non-union, received lower rates. On June 1, 1885, both the Amalgamated Association and the United Nailers went on strike (Hogan 1971, pp. 228-229).

The mill operators got around any further discussion with the unions during the strike by, first, hiring heaters and rollers from the outside (against the Amalgamated Association); and, secondly, by inviting and agreeing to train feeders as nailers (against the United Nailers). These tactics led to some violent reprisals from strikers, but eventually, the nailers were compelled to agree to a compromise and the production of nails with steel wire became firmly established in Wheeling "and nailers as a class of skilled workers gradually disappeared from the scene" (Hogan 1971, p. 229).

Capital and Labor in Homestead: Carnegie, the Amalgamated Association, and Union Breaking, 1889-1892. At the time of the Wheeling Strike, in 1886, Andrew Carnegie (1886, p. 119) wrote this about the workers' right to organize unions in "An Employer's View of the Labor Question":

The right of workingmen to combine and to form trade-unions is no less sacred than the right of the manufacturer to enter into associations and conferences with his fellows and sooner or later must be conceded. Indeed, it gives one but a poor opinion of the American workman if he permits himself to be deprived of a right which his fellow in England has conquered long since. My experience has been that trade unions upon the whole are beneficial to both labor and capital.

Carnegie's very "friendly" view of labor is reminiscent of and typical of the times in the industry when production was very much dependent on skilled labor. In fact, the craft associations and unions of skilled laborers were generally viewed by the operators of mills to act as a kind of stabilizing force where competition between capitals was fierce and markets were unpredictable. Four major stabilizing influences of the Amalgamated Association can be identified: (1) it participated in the negotiation of uniform wage scales for western mills; (2) it negotiated the equalization of hours, output, and working conditions; (3) it "kept in check independent minded iron workers"; and, most importantly, (4) it "guaranteed union mills a supply of scarce puddlers and rollers" (Brody 1960, p. 50).

Yet, as steel production intensified, the posture of capital toward labor became decidedly anti-union. A situation had emerged where mills west of the Alleghenies were generally unionized and those east were more resistant to unions. Partially, this is because when firms previously engaged in iron production were shifting to steel production, unions were generally accepted in the new steel making departments of the mills. But the steel mills were less likely to be open to union organization. For example, one of Carnegie's biggest competitors, the Cambria Steel Company of Johnstown, Pennsylvania, had successfully resisted the organization of its works and had run non-union since the early 1870s. The Cambria Company had also entered steel-making earlier through its incorporation of the Gautier Steel Company as a distinct subsidiary. As a result, the facilities of the Gautier Company were moved from Jersey City, New Jersey, to Johnstown. By 1881 Gautier Steel became the complete property of Cam-

bria. Through this acquisition and its resistance to unionization, Cambria became an important force in the production of steel.¹⁸

Cambria's success in the area of labor control was no small part of its established leadership in iron and steel production. The company, free of the competition of other iron and steelmaking facilities in the region, was in essence able to hold its mill and mine workforces as something of a "captive population" by dominating as it did the landscape and daily lives of its workers. It controlled stores, highways, schools, housing, and even paid its workers' wages in company issued currency. Described by Gutman (1976, p. 327) as "a kind of industrial feudalism," workers could, for example, be evicted from their homes with as little as ten days' notice, and "the discharged worker was listed publicly as 'not employable' by the Cambria Iron Works" (Gutman 1976, p. 334) for failing to fulfill the terms of the labor contract as set down by the company. Gutman (1976, p. 331) offers the following which exemplifies the company's power:

John Tomlinson, the deputy commissioner of the Pennsylvania Bureau of Labor Statistics, concluded that the "state of things" was "a very great anomaly in the midst of a free country." He declared that the operators had created "absolute personal government in the midst of a republic."

¹⁸ In the immediate post-Civil War years, the Cambria Iron Works was a leader of the nation in production. Quoting the New York Times of 1874, Gutman (1976, pp. 320-321) states that they were "'the finest works in the country and one of the glories of Pennsylvania'." A national leader in the production of wrought iron rails in 1871, Cambria was also one of the first Bessemer steelmaking facilities in the country. Hogan (1971, p. 93) comments,

In the mid-1870's the plant [Cambria], was one of the largest, if not the largest iron and steel mill in the country. In 1876, it set a record for rail production with 103,743 net tons of rails.

Furthermore, the labor contract of 1874 for the Cambria Iron Works is quoted as stating:

...Any person...known to belong to any secret association or open combination whose aim is to control wages or stop the works, or any part thereof, shall be promptly and finally discharged.... Persons quitting work, or inducing or attempting to induce others to quit work...shall forfeit whatever wages may be due...to such persons absolutely.

Against this background of intolerance for labor organization, and the situation of dependency which characterized the relationship of worker to company, Cambria was successfully able to suppress union activity. With the coming of the Depression of 1873 and the subsequent deterioration of the rail market, the Cambria Company,

...adjusted to the situation by lowering costs, cutting production, and laying off workers. Wages dropped. At first, they were cut 10 percent, and then in mid-November a further cut of 21 percent was announced. The sliding scale of the coal miners was revised downward. Finally, the company paid the entire new wage in store goods and credit rather than in cash. Company officials advised dissatisfied men to find other jobs, and told the rest to accept the new wage or face unemployment. The Cambria Iron Works thus sought to weather the early months of the depression (Gutman 1976, pp. 331-332).

When workers responded to this situation with revitalized union activity and strike threats, the company was able to finally defeat unionization through a combination of lockouts in 1873-1874 and the procurement of raw materials from outside sources. The Cambria Iron Company had what Carnegie did not--not only the best and most organizationally integrated facilities, but a completely non-union workforce. The Carnegie Company and the other basic iron and steel producers would not have both of these things for another eighteen years.

In the Pittsburgh district mills, the Amalgamated Association successfully organized Carnegie's Homestead mills as well as the mills of Jones and Laughlin. By 1889 there were seven lodges active in the Homestead works (Brooks 1940, p. 23), and Homestead had become the strong center of the Amalgamated Association at that time. As Stone (1974, p. 121) comments, "...it is no wonder that the battle between capital and labor would shape up there." The strike of 1892 would be, in effect, the "last stand" of the Amalgamated in the basic steel industry.

Carnegie's stated attitude towards the union had begun to change, reflecting changing conditions in the steel industry. At first, Carnegie complained that since the union had failed to organize the whole industry, the Homestead mills were at a distinct competitive disadvantage (Brooks 1940, p. 25). Contrary to the 1886 statement of its key founder, the Carnegie Steel Company began to pursue a program of anti-union actions. First, in 1885,

Machinery at the Edgar Thomson Works...displaced 57 of the 69 men on the heating furnaces, 51 of the 63 men on the rail-mill train, and similar numbers elsewhere. The two lodges [of the A.A.I.S.W.] at the plant dissolved as a result, but the union did not complain (Brody 1960, p. 51).

Secondly, in 1890, again, the year that the U.S. industry surpassed Great Britain in output and export of steel, the Carnegie Company successfully prevented unionization of the Duquesne works by bringing in inexperienced help. The similarities between these two cases (the Edgar Thomson and Duquesne Works) and the situation that developed in Wheeling in 1885-1886 are strikingly apparent. It seems that capital had settled on a new labor relations strategy. The

essence of this strategy, based on the increase of steel production, and therefore mechanization of production, is captured in the following statement from Charles Schwab of U.S. Steel Corporation, in looking back at this period:

In 1901, Charles Schwab observed that the relation of skills to union strength had been greatly exaggerated. He could take a green hand--say an intelligent farmworker--and make a melter of him in six or eight weeks. Strike tactics therefore changed from quiescence to importing strikebreakers (Brody 1960, p. 58).

By all estimations, in 1892, the industry was probably only about half unionized.

It is after the union left the Edgar Thomson works and before the events at the Duquesne works that the conflict that would lead to the Homestead Strike of 1892 really began. In May of 1889, Carnegie and his Steel Company openly declared an antiunion policy. In the same year, the company proposed these terms to the new labor agreement (Brooks 1940, p. 25). First, the company called for wage reduction for skilled workers. Secondly, the company proposed that the contract be terminated in January. Contracts usually came up for renegotiation in June. The significance of this is that the union was in a better bargaining position in the summer when production levels were higher. Thirdly, contracts were to be negotiated and signed by the individual workers. This final proposal would give the company leeway to bypass the union completely in the negotiation process.

The union refused to accept such terms and on July 1, 1889, went out on strike. There was a great deal of sympathy for the strike in all of Carnegie's establishments, including support from railroad workers and those in the coking facilities. The strike could have

closed Carnegie down completely. At Homestead, the strike ended in a somewhat embarrassing way for the company. It is described by Brody (1960, p. 58) as follows:

The company sent one hundred deputy sheriffs to take possession of the works. The strikers, no less astute, disarmed them, and shipped them back to Pittsburgh minus coats and caps. No violence accompanied this tentative effort, and the company retreated.

Carnegie Steel abandoned its demands, and the strike ended in a victory for the union. But there is some doubt over whether or not it was a decisive union victory. Brooks (1940, p. 26) calls the strike "a clear victory for the union." Stone (1974, p. 118) states, "At Carnegie's Homestead mill, a contract was won in 1889 that gave workers authority over every aspect of production there."

Brody (1960, p. 52) argues that while the strike was a victory for the union--after all they did win a contract--it could not stop or reverse the process of concession-taking that had been going on for some time. In fact, in the resolution of the strike of 1889, the union gave up some important rights. What had the union lost by then and in 1889?

- The Amalgamated Association gave up attempts to negotiate standard wage scales. Union lodges negotiated with particular mills.
- "The Association accepted the principle that increased output through mechanical advance necessitated rate adjustments." In essence, for a union whose traditional basis of influence had been control of skill, the Amalgamated Association agreed to the conditions of its own demise.

- Following the 1889 conflict the union gave up responsibility for hiring and paying unskilled helpers to the management of the mills, and, along with this, gave up its right to determine hours.
- Finally, because of increased mechanization in steel plants, the union lost any influence in setting output limitations. In this, and in the loss over influence in decisions concerning deployment of unskilled labor especially, one must question Stone's assertion that the union had achieved "authority over every aspect of production." In fact, it seems that the union, and therefore the skilled workers, were losing authority.

Another factor which Brody discusses, one that Brooks and Stone seem to neglect in discussing the strike of 1889, is the steadily deteriorating position of the union even during the strike. Other firms in the industry withheld the signing of contracts for the duration of the strike. Also, after the strike, wage cuts throughout the industry generally matched those established at the Carnegie mills. This is a pattern that would be repeated after 1892. Brody (1960, p. 57) observes that during the 1889 strike at Homestead,

A Jones and Laughlin official stated: "This company will make no terms with its men until there is a settlement at Homestead." It could not pay higher wages than its chief rival.

So, while the union had lost its ability to influence the establishment of standard, industrywide wage scales, mill operators gained the ability to depress wages on an industrywide basis.

What was won in the strike was the survival of the union, and, in the wake of the strike's success, "membership increased by half...and the balance in the treasury rose to \$146,000" (Brody 1960, p. 54).

Also won was a three-year contract, due to run out on June 30, 1892. The stage was set for the strike of that year.

Between 1889 and 1892, the situation in Carnegie's Pittsburgh district had changed in an important way. Keeping the union out of the Duquesne works (1890) and the breakdown of the union at the Edgar Thomson works combined to give the Steel Company,

The special advantage of a multi-plant operation which was only partly unionized; Carnegie could count on some production no matter what happened at Homestead (Brody 1960, p. 59).

The Carnegie Company had been able to create something which in the modern period has come to be called "parallel production."¹⁹ Bluestone and Harrison (1982, p. 166) say about parallel production: "A strike or other form of disruption at the original shop can be met by redirecting more production to the non-union facility...and it also strengthens the hand of management back in the union shop." Because it could potentially move production between sites, the political position of the company had been strengthened. Hogan (1971, p. 248) indicates in the following statement that such a strategy was effective. "Despite the duration of the strike and its costs, the Carnegie Steel Company made a substantial net profit of about \$4 million during the year." With this the company became more intolerant of the union. J.H. Bridge in his History of the Carnegie Steel Corporation sums up the attitude of the company toward the union in this statement: "Every detail of the great plant was subject to the

¹⁹ Adam (1975, p. 94) describes this as "multi-sourcing." Barnett and Müller (1974, p. 309) also discuss the political impacts of "multiple sourcing" upon labor which allows corporations to protect themselves from strikes as a measure of independence from any one plant's labor force is achieved.

interference of some busybody representing the Amalgamated Association" (1903, pp. 201-202).²⁰

In 1892 America led Britain, steel production led iron production nationally, and Carnegie's company led the steel industry. At Homestead the contract with the Amalgamated Association was due to expire on June 30 of that year. On the eve of the coming conflict, Carnegie left for a trip to Scotland, and his chairman, Henry Clay Frick, was to deal with the union. Before leaving, Carnegie gave instructions to Frick to "roll up a large lot of plates ahead, which can be finished, should the works be stopped for a time" (Brody 1960, p. 55).

In essence, the terms offered by the company to the Amalgamated Association in that year were not different from those offered in 1889. The company called for wage reductions for 325 skilled workers, and delivered its terms to the union as an ultimatum. The union had to accept the company's terms by June 24 or else the company would begin to write individual contracts (Brody 1960, p. 53; Brooks 1940, p. 27; and Hogan 1971, p. 231). The union was willing to make wage concessions, but agreement could not be reached over the level of cuts that were necessary. However, it should be pointed out that while the conflict between the union and the company was stated to be over wages, from the point of view of the company, "the real point at issue in the 1892 dispute was the very life of the Amalgamated Association and of unionism in general" (Hogan 1971, p. 231). Where once the union had been seen (e.g., by Carnegie) as a stabilizing force

²⁰ Quoted also in Stone (1974, pp. 118-119).

in production, it was now seen as an obstacle. Brody (1960, pp. 52-53) comments:

In the course of its experience in the puddling mills, the Amalgamated Association had accumulated an extensive stock of rules to protect its members. The regulations were carried over into the steel plants. The Memorandum of Agreement for the Homestead works, for instance, contained fifty-eight pages of "footnotes" defining and limiting the rules of work of Amalgamated men.²¹

The company wanted nothing to do with the union any longer since the existence of the Amalgamated Association in the steel mills impeded the reduction of labor costs made possible by advancing mechanization of steel production. Carnegie saw the destruction of the union as the "chance to reorganize the whole affair" (Brody, 1960, p. 53). In the Pittsburgh Post, July 8, 1892, Frick was a little more blunt in his summary of the company's intentions. He stated them in these terms (Hogan 1971, p. 231):

I can say with the greatest emphasis that under no circumstances will we have any further dealings with the Amalgamated Association as an organization. This is final.

Throughout the steel industry at the time, the Carnegie Company was viewed as fighting the good fight against the Amalgamated Association. For example,

During the Homestead Strike, John Gates [American Steel and Wire] had assured the Carnegie Company of his willingness to postpone the fulfillment of its contract until after the struggle with the Amalgamated: "Fight them to a finish with hard gloves, and give them no quarter after you get them in a corner and we will take the rods in 1894 if necessary" (Brody 1960, p. 57, quoting Gates's communication to J.C. Fleming, August 9, 1892).

²¹ See also Stone (1974) for the attitude of mill operators toward these rules.

The strike was apparently consolidating capitalists as they rallied around Carnegie.

The Amalgamated Association's refusal to accept the company's terms preceded its defeat at Homestead in 1892 and the "dislodgement" of the Amalgamated from the rest of the basic steel industry proceeded rapidly.²² Also, the union failed in its subsequent battle with the company in the courts. By November 20, 1892, the union was banished from Homestead and the Amalgamated Association was driven from basic steel production.

After the Carnegie Company's victory at Homestead, other companies followed the lead. For example, after Homestead,

The superintendent at the Joliet steel mill [of Jones and Laughlin] handed the men an ultimatum: unless they took a one-third slice, he would start up nonunion. The Association accepted...."The steel mills are getting away from us," lamented President (of the A.A.I.S.W.) Shaffer....By 1910, the Association

²² The events of the strike shaped up as follows (Brooks 1940, pp. 27-28; and Brody 1960, p. 58):

As the expiration date of the contract approached, the company announced that it would have no further dealings with the union beginning on the first of July. Frick ordered the construction of a fence topped with barbed wire around the whole of the Homestead works and on 30 June, the mill's workforce was locked out of the plant. Frick planned to reopen the plant on 6 July with nonunion workers so, three hundred Pinkerton guards were brought in and landed by river barge at Homestead (Frick had contacted the Pinkerton agency on 24 June). The strikers had heard of Frick's plans, and, determined to keep the plant closed to strikebreakers, awaited the arrival of the barges carrying the Pinkertons who were being brought in at night. Armed hostilities broke out between the strikers and the hired guards, leaving seven strikers and three Pinkertons dead with many other casualties on both sides. The Pinkertons were forced to abandon Homestead.

The defeat of the Pinkertons, however, prompted the deployment of the Pennsylvania state militia. With this, the Homestead works were reopened and started up with a nonunion workforce. The strike, for all practical purposes, was over.

listed but one small open-hearth plant under contract (Brody 1960, pp. 57 and 60).

The union would continue in the organization of mills producing certain finished steel products where skill still remained an important factor, especially in the production of sheet and tin plate. The union, in fact, retreated to these mills, and, as de-unionization of basic steel continued through the 1890s, the Amalgamated Association urged displaced skilled workers to seek employment in these other industries.²³ At the opening of the twentieth century, the union had organized three-fourths of the sheet mills and all tin plate mills except one, and it became officially the Amalgamated Association of Iron, Steel, and Tin Workers (Brody 1960, p. 60).

The Repercussions of the Homestead Strike of 1892. In the aftermath of the 1892 strike, severe cuts in wages were announced in the Carnegie Company. In 1893, an official of the company stated (quoted in Brody 1960, p. 42; and Brecher 1972, p. 63):

With this new [wage] scale in force the firm will be in a position to compete more successfully than ever before, and will probably have a material advantage over many of its competitors in cost sheets.

This is representative of a general trend in the industry. For example, at the time this new wage scale was announced in the Carnegie Company, others responded to Carnegie's bid to out-compete other producers and break out of the pack. At Cambria,

²³ The Amagamated Association would effectively be banished from these facilities as well with the formation of trusts and entrenchment of their industrial position. For example, Garraty (1960, p. 8) states that during the years 1900 to 1901, American Sheet Steel Company shut down nine out its twenty union mills while "all seven of the company's non-union mills were operating full tilt."

Powell Stackhouse [of Cambria's management]...recalled, "We were looking everywhere to reduce our costs, and labor got its share of it....We got them down low. We had to" (Brody 1960, p. 42).

In 1893, wages fell an average of 25% throughout the industry. Also, between 1890 and 1910, labor costs as an aspect of total manufacturing costs fell from 22.5% at the same time that productivity doubled in steel plants and increased three times in the blast furnaces. As Hogan (1971, p. 233) observes:

The low-cost attitude of the companies naturally affected the steelworkers, for they too represented an item of cost. Every attempt was made to multiply their productivity in relation to their income.

Labor had gone in twenty years from scarce resource to a mere factor in production.

All of this took place before the backdrop of actual and threatened closure of facilities. A pool of strikebreakers was created in one sense through the closure of iron facilities and puddling furnaces. The threatened plant closure came into its own during this period as a political tool in the discipline of labor forces. This is illustrated in the following quote from a correspondence between William Edenhorn to John Lambert of Consolidated Steel and Wire Company, 19 February, 1897 (Brody 1960, p. 42):

The American Wire Company about two weeks ago laid before its wire drawers the ultimatum of a ten percent reduction or an indefinite shut-down of its works. The men took the reduction and the works are running.

This strategy of control would continue into the twentieth century. In 1913, John Topping of Republic Steel said: "When you shut down and

they get hungry, they are anxious to take any terms" (Brody 1960, p. 41).

Summary and Conclusions

In this chapter I have presented a framework for discussing the development of the steel industry in the United States during the second half of the nineteenth century. The importance of the link between the conditions of capitalist competition on the one hand and the conditions of capitalist production, i.e., of labor control, on the other hand is emphasized. This framework is useful in discussing the particular development of the steel industry against the historical conditions of capitalist industrialization globally, as well as in the domestic arena, and in illuminating the significance of the major labor struggles in the industry during these three decades.

Three Contexts of Capitalist Competition

The American steel industry arose within three realms of capitalist competition. First, in general, the rise of the steel industry can be explained as an outcome of the successful assertion of the interests of Northern industrial capital over those of Southern agricultural capital, with the latter linked to the interests of British industrial capital. This competition, the historical expression of which culminated in the Civil War, was between factions of the domestic owning class, representing different forms of capital ownership over rights to make demands on the state to protect and advance those interests.²⁴

²⁴ In this way, the Civil War was the end result of the process of capitalist nation-building. Wallerstein (1976, p. 33) defines a nation-state as "a territorial unit whose rulers seek...to make it a national society."

Secondly, Northern victory in the war created the political conditions (e.g., the establishment of protectionist measures) for the advancement of United States industrial capital since the state could be called upon more easily to support its interests over those of any other national capitalism, particularly those of the capitalist class of Great Britain. The preservation of the Union and the establishment of protectionist barriers meant the security of the domestic market for American industrial capitalists from threats to its position from both inside and outside of this market.

Thirdly, in the domestic sphere, the protection of the American market from foreign capital led to a rush on the part of American producers to gain control over the domestic market. For example, the revised Morrill Tariff in 1871 preceded a rapid growth in the domestic production of steel rails which previously had been virtually nonexistent. Domestic manufacturers vied with each other to meet the demands of the market for steel products. In an atmosphere of intense competition between individual firms, iron-making facilities were being shut down and investment was shifted towards the production of steel. The creation of the United States as an industrial capitalist nation, and the security of its market from British designs on it, left American capitalists, particularly those invested in steel, to fight it out with each other at home.

When it became apparent to the "southern slave owning oligarchy" (cf. Baran and Sweezy 1966, p. 252 above) that they could no longer depend on the existing state to secure them within the domestic order, they attempted to withdraw and form a new national society the political structure of which would be more single-mindedly dedicated to the preservation of the plantation system.

Capitalist Competition and Labor Control: "Partners--Alike in Prosperity and Adversity" to "Busybodies Representing the Amalgamated Association"

The major means by which individual capitals secure their competitive position is through the successful and progressive devaluation of labor through mechanization and centralization of processes (cf. Castells 1980, p. 18, above). Capital seeks not only to achieve undisputed control over markets, but undisputed control over the conditions of production. At this particular time, such control necessitated the undermining of the importance of craft labor. The ability to control markets is, in fact, inextricably tied to the ability to control production, which in turn rests on the control of labor.

It is in relation to the highly competitive situation in American capitalism and particularly in steel production that the major labor struggles of the nineteenth century beginning with the "Great Upheaval" must be understood, and with them, both the Wheeling Strike of 1885-1886 and the Homestead Strike of 1892. In his assessment of the Homestead Strike of 1892, Brecher (1972, p. 62) states:

In the final analysis, the strikers were defeated by the new technology of the steel industry. In the earlier days, it had been impossible to run the mills without the skilled men of the Amalgamated, and so all that was necessary to defeat an employer was "to withhold our skills from them until such time as they agree." But with the increasing mechanization of the mills [made possible in the first place by the nature of steel production against that of iron], employers could start up with new men and only a nucleus of experienced workers. The new giant corporations with many plants could easily shift work from a struck plant to an unstruck one and thus be relatively unscathed by the strike.

A similar process was seen to operate at Wheeling six years earlier.

When viewed in this light, the events at Wheeling and Homestead represent the culmination of the process in which capital wrested political control over production from labor and the resistance of labor to its subsumption under capital. In his definition of alienated labor, Edwards (1979, p. 147) states that labor alienation, in one important sense, is the process under which "workers are forced to work according to capitalist criteria." If craft and skill represent political control over production by laborers--i.e., the extent to which production is carried out according to "criteria" set by workers--then the break-up of the Amalgamated Association, an association of craft workers, represented the loss by labor of the ability to make any such claims.

In the steel industry in 1892 labor was finally transformed from scarce and valuable skill to replaceable commodity and object of control. Steel masters went from being concerned with preserving and securing their source of valuable labor to being concerned with controlling it. Labor power in the form of craft in general, and iron puddling in particular, lost its character as the "carrier of skills and experience, developed through time" (Shaw 1978, p. 16).

It was during the 1880s, the time of conflict between capital and craft labor, that Frederick Winslow Taylor began his "experiments" in scientific management at the Midvale Steel Company. In 1898, Taylor was hired by Bethlehem Steel to organize the company's facilities according to the principles of scientific management (Hessen 1972, pp. 343-346). Although strict application of scientific management met with little success in the steel industry, interest in them by Bethlehem and other producers in the age of craft destruction indicates

the desire on the part of steel manufacturing interests to dictate every aspect of production to its labor force.²⁵ According to Shefter (1986, p. 273),

Employers chafed under the restrictions that unions placed upon their ability to control and deploy their labor force and many sought to overcome these restrictions by adopting the changes in organization of production advocated by Frederick W. Taylor....

The Wheeling and Homestead Strikes demonstrate the capacity gained by capital to undermine the political influence of labor over the production process in the transition of iron to steel production, and this was facilitated by the disinvestment of iron and investment in steel production. With the defeat of the Amalgamated Association in basic steel production, "labor conditions were dictated in great part by minimum cost requirements" (Hogan 1971, p. 233). By extending control over the production process through the disorganization of labor, the conditions for the intensified organization of capital were

²⁵ In fact, one of the problems of scientific management, at least with respect to the Bethlehem case, was that Taylor was too successful. Hessen (1972, pp. 343-344) states:

Taylor first applied his time-and-motion study methods to the handling of raw materials in the Bethlehem yards; he devised procedures whereby only 140 men would be needed to do work which previously required more than 400. However, Bethlehem's owners were displeased with Taylor's new system. "They did not wish me, as they said, to depopulate South Bethlehem," Taylor later wrote. "They owned all the houses in South Bethlehem and the company stores, and when they saw that we [Taylor and his assistants] were cutting the labor force down to about one-fourth, they did not want it."

In this case the company's desire to dictate every aspect of workers' lives inside the factory clashed with their equally important and profitable desire to dictate workers' lives outside the factory as well.

created. The foundation was laid for the great mergers of the 1890s, and with them the centralization and concentration of capital in the steel industry leading to the formation of the United States Steel Corporation in 1901.

CHAPTER IV:

STEEL AND MONOPOLY I: TRUST FORMATION, CENTRALIZATION, FACTORY CLOSURES, AND THE "LONG MARCH" TO 71 BROADWAY

Introduction

The original formation of the steel industry from 1865 to about 1892 was accompanied by the dissolution of America's iron industry. The next phase of this development, the phase of monopoly formation in steel, from the 1870s to its culmination in the formation of the United States Steel Corporation would be accompanied by the continuing closure not only of iron facilities but of steel making facilities also.

This chapter is a discussion of the development of the steel industry in the post-Homestead period, from the 1890s to the formation of United States Steel Corporation in 1901, emphasizing the historical relationship between the formation of the great trusts in the steel industry and factory closures. The abandonment, dismantling, and relocation of plants in this period of rapid and massive industrialization are placed in the forefront through a survey of the dominant trusts which were eventually brought together to form United States Steel Corporation including the Carnegie Steel Company and the companies of the Moore and Morgan Groups. Carnegie Steel, Morgan's Federal Steel, and Moore's National Steel were the largest and most integrated of the basic steel producers. Gates's American Steel and Wire Company and Shelby Steel Tube Company, leading steel fabrication concerns incorporated into U.S. Steel, are also discussed along

with American Bridge Company and National Tube Company of the Morgan Group and Moore's American Tin Plate Company, American Steel Hoop Company, and American Steel Plate Company.

The building of the American steel industry was accompanied both by factory closures in the United States as firms centralized production and markets, and by the dismantling of steel making facilities in England especially steel fabricating facilities like those for making tin plate which were shipped to this country. Therefore, the central focus of this chapter is the extent to which the transformation of the industry involved a process similar both "mechanically" and in the logic of its development to what is now called deindustrialization.

The developments taking place during the late nineteenth and early twentieth centuries in world, and particularly, American capitalism have been described as comprising a capitalist revolution. The most important aspects of this revolution are identified as the increasing ability of capitalist firms to concentrate control over industrial production and distribution (cf. Berle 1954, p. 25, and Baran and Sweezy 1966, p. 34). Thus, this capitalist revolution was also necessarily a corporate revolution as companies centralized organizational command and integrated production at an unprecedented level and rate (Bryant and Dethloff 1983, p. 169, and Hacker 1968, p. 438). The events leading up to the formation of the United States Steel Corporation and its role in the subsequent development of the steel industry and capitalism in the United States was part of this dual revolution. In turn, factory closures are part of the formation of United States Steel. Therefore, examination of this late nineteenth century example can demonstrate the importance of factory closures in the process of in-

dustrial and corporate growth domestically just as sociological writings focusing on the post-1945 period reveal their importance in domestic industrial decline.

In this chapter, then, we consider the role of the factory closure in the extension and intensification of control over production through the process of monopolization, i.e., as firms develop along the dimensions of horizontal, vertical, and spatial integration. Historically, this occurred, as in the case of the steel industry, through the development of organizational forms culminating in the rise of the holding company as a tactic of control. This facilitated the command of single corporate administrations over larger geographically defined markets, coordination of production from raw material processing to distribution of finished goods, and brought together previously competing firms engaged in similar processes.

The terms horizontal, vertical, and spatial, applied in this context refer to the points at which capitalist firms compete with one another while the term integration is synonymous with control. Thus, for example, we may speak of independent firms engaged in competition horizontally, vertically, and spatially versus their integration at these points where previously competing firms lose independent identity or are transformed into subcompanies or divisions of single corporations through mergers. The history of the development of the steel industry in the United States demonstrates an essential contradiction concerning the nature of market relations under capitalism, the contradiction between competition and control.

Capitalist competition takes place horizontally across products, vertically through stages of production processes, and spatially over

geographically defined markets. In other words, competition between capitalist enterprises occurs between firms producing and selling similar commodities, firms which are engaged in processes located on longer chains of production, and between firms over rights to produce and sell commodities within given areas (cf. Wallerstein 1983, p. 29). However, while capitalism ever tends toward competition between individual capitals since interest is always defined particularistically in terms of profit, the ability of any one capital (e.g., firm) to accumulate profit--to self-expand--circumvents the ability of others to do the same (Marx, 1967/1894, pp. 173-199; Foley 1986, p. 94; Mandel 1968, pp. 162-166). Therefore, the driving force in relationships between capitalist firms is not toward competition but toward overcoming competition, toward control--horizontally over products, vertically over processes, and spatially over geographically defined markets. Firms, and, operating within them, capitalists and their representatives, are suspended between the tendency toward competition and the necessity of establishing control.

This quest for integration--that is, control over production--is carried out in a variety of social and organizational contexts. For example, at the level of relations between capitalist national states, state policies more or less represent the interests of domestic capitalist classes, or at least the most powerful or important factions thereof.¹

¹ I am speaking in very general terms here. However, I recognize that the issue is much more complicated than I have presented it. There is an ongoing debate in social science over the nature of the state in capitalist society (cf. Brown 1986; Miliband 1969; Poulantzas 1975; O'Connor 1973; Szymanski 1978; Wolfe 1977; and others). Within Marxism in particular, there is argument over the degree of relative autonomy between state processes and those of class. Skocpol (1980, pp. 161-178) explains this debate between neo-Marxist theories of the

Protectionist policies, as we have seen, contribute to the security of the domestic market. The corollary of protectionism is imperialism where state policies support the quest for control over production and markets outside of the immediate domestic context (Barone 1985, p.

state as centered around the works of Miliband and Poulantzas. Miliband (1969), arguing against Mill's (1956) theory of the power elite, claims that the state is an instrumental extension of the class interests of the bourgeoisie operating as its political wing and recruiting its functionaries from the capitalist class itself. Poulantzas (1975) argues that the state is more autonomous than is claimed by Miliband and functions to represent the interests of the entire capitalist class. It is contained within the larger context of capitalist society which determines the logic of its operation regardless of from where its functionaries are recruited. My purpose here is not to resolve this debate but to emphasize what each side shares in common. For my purposes, I recognize, as does Brown (1986, pp. 95-96), that both Miliband's and Poulantzas's ideas are variations on the theme expressed by Marx and Engels (1848/1972, p. 33) that "The executive of the modern state is but a committee for managing the common affairs of the whole bourgeoisie." Where they differ is not on the point that this is so, but on how it is so. Therborn (1978, p. 28) offers a definition of the state which is critically opposed to both Miliband's and Poulantzas's: "The state should be regarded neither a specific institution nor as an instrument, but as a relation--a materialized concentration of the class relations of a given society." This is to say, as does Ollman (1976, pp. 212 and 217), that the state is really a "facet of the class relation" which "represents the domination of one class over another." The state is neither instrument nor institution separate but supportive of class domination. But, state and class are inseparable aspects of capitalist society. The state is itself an expression of class, of "national power of capital over labor" (Marx 1870/1935, p. 142) and of national capitalisms against each other. Also in opposition to Miliband and Poulantzas, Skocpol (1979, p. 29) defends a more Weberian or what she calls "organizational" or "realist" view of the state where she claims that while the state exists in a larger institutional setting, part of which includes class divided relations, the state also has its own interests which it seeks to advance against all others. In such a view, the state is ultimately autonomous and develops apart from or incidentally to class processes (cf. Skocpol 1979, p. 178). The basis of the so-called "realist" perspective is the definitional separation of the political and economic realms and therefore it constitutes a denial of the interrelationship between polity and economy which Block (1978, p. 3) asserts is implicit in the development and existence of capitalist society.

81). Policies of the state also regulate the capitalist struggle between individual capitals within the national context, as, for example, in the case of anti-trust and other kinds of policies.

At the level of the firm, the quest for horizontal, vertical, and spatial control over production takes place through organizational developments like those of interfirm relations from the pool, to the trust, to the holding company. Each of these progressively extends and intensifies control over products, processes, and markets. In sum, this chapter is a consideration of the role of the factory closure in this overall development. It is against this that the concept of deindustrialization as it has currently influenced sociological discussions must be reconsidered. My purpose is to highlight the role of plant closures in the process of the building of the steel industry as opposed to their role in its dismantling as is emphasized in current sociological treatments of the issue. I will do this by placing the factory closure within the context of trust formation and monopolization in the domestic steel industry.

The Steel Industry in the Late Nineteenth Century: Concentration and Centralization of Production

The birth of the steel industry took place amidst the abandonment of iron production and, with it, of ironmaking facilities. In the last stage of its transition from iron to steel production, Hogan (1971, p. 300) states:

The Directory to the Iron and Steel Works of the United States for 1896 included the following statement: The most notable abandonment of [iron] puddling furnaces that has taken place in recent years has occurred at the American Works of Jones and Laughlin, Ltd. In 1894, this firm reported 92 single puddling furnaces as still forming part of its plant; in the present edition

only 15 single puddling furnaces are reported and on February 8 the last of these furnaces was dismantled.

As seen in the previous chapter, this course of disinvestment of iron production and shutdown of iron making facilities was part of a larger, industrywide trend of the simultaneous movement away from craft based labor accompanied by the destruction of ironmaking facilities and the movement of capital into steel production.

On the world and national economic stages, the close of the nineteenth century was a time of unprecedented capital centralization. In relations between capitalist states, imperialism and protectionism were aspects of this as two expressions of the same process through which world markets become divided among capitalist powers (Lenin 1917/1975, p. 105). The drive toward consolidation in the steel industry was, of course, part of a general trend toward monopolization taking place in the national economy, and across other core economies at the same time as "rivalry between the great national capitalisms hardened" (Beaud 1983, p. 131) and the "Age of Finance Capital" began, i.e., the progressive merging of industrial capital with and through banking capital (Lenin 1917/1975, p. 105). Within nations, large scale industrial and financial combinations were formed and corporations were ever becoming world actors even as their nations were becoming imperialist powers.

The German economy was dominated by the likes of the Krupps in steel, AEG and Siemens in the electrical industry, and the Deutsche, Dresdner, and Diskonto Banks in finance (Beaud 1983, pp. 136-137, and National Industrial Conference Board 1931, pp. 79-105). In Britain, typical of the period from 1880-1918, 655 independent

industrial firms were merged into 74 corporations. Also in Britain from 1880-1913, 250 private banks were consolidated into 48 and 120 joint stock banks into 43. In the "brave new world" of monopoly capitalism, whole branches of American industry were dominated by trusts, for example: 50 percent of textile production, 54 percent of glass-making, 60 percent of paper and book production, 62 percent of food, and 72 percent of liquor, 77 percent of nonferrous metals, and 81 percent of chemical production. Similar developments occurred in iron and steel where 84 percent of all production, including basic and fabricated steel production was controlled and organized by trusts (Beaud 1983, pp. 136-137). By 1901, 60 percent of all iron and steel production would be accounted for by the United States Steel Corporation alone. In the first decades of the twentieth century, the United States became the leader among capitalist nations in all aspects of steel production. As a nation, the steel output of the United States reached 31,300,874 tons, more than the combined outputs of Great Britain and Germany, and by themselves, the mills of Pittsburgh accounted for one quarter of the world's total output of steel (Cotter 1916, p. 8). As Greer (1979, p. 51) states, "massive industrialization was the order of the day."

The domination of the American economy by trusts reflects the situation described by Mandel (1968, p. 403):

The number of trusts, which was only 23 in 1890 and 38 in 1896, reached 257 in 1904, the annual capitalization of mergers, which had never exceeded 240 million dollars, reached 710 million in 1898, and 2,244 million in 1899. Out of 339 mergers which took place in this period, 156 gave rise to definite degree of monopoly power.

The consolidation of the steel industry in America had been taking place since the end of the Civil War. Two significant events in the late 1880s and early 1890s were the formation of the Illinois Steel Company in 1889, followed three years later by the reorganization of Carnegie Steel as Carnegie Steel Company, Ltd., a holding company which controlled natural gas wells, coal lands and coke processing facilities, iron ore lands, blast furnaces, steel mills, railroads, steamship and barge lines, ore docks, and merchandising stores. Firms were widening and deepening their control over all aspects of steel production. Integration of production necessitated organizational integration, and as a consequence, in the steel industry as in other industries, the independent firm was being obliterated by monopolization and giving way to the trust and holding company.

During this period, the rate of trust formation in the steel industry was intense. In a mere three years from 1898 to 1900, the vast majority of America's steel making and finishing capacity came under the control of trusts. In 1898, allied holding companies of the Morgan Group, whose Federal Steel Company itself incorporated Illinois Steel, were formed. American Bridge Company and National Tube Company also came under control of Morgan interests. National Steel, American Hoop Steel, American Tin Plate, and American Sheet Steel of the Moore Group of allied holding companies all came on to the scene between 1898 and 1899 (Temin 1964, p. 191). Also in 1899, John W. Gates established the American Steel and Wire Company, and in 1900 Shelby Steel Tube Company underwent a major reorganization which gave it its final form as an independent company before its merger into United States Steel. When the dust had settled

after this first wave of consolidation, more than half of the total steel making capacity of the nation came under the direction of this handful of companies (Cotter 1916, pp. 21-28; Hogan² 1971, p. 464; and Hacker 1968, pp. 436-437). This process of intense industrialization, corporate growth, expansion, and capital formation was accompanied by a parallel process involving factory shutdowns, abandonment, dismantled facilities, and disinvestment.³

Capitalist Competition and Combination

The major developments taking place in the iron and steel industry of the late nineteenth century were the centralization and consolidation of control over production and markets by fewer and fewer companies. The oligopolization of the industry also brought with it territorial concentration. Where the industry was once scattered and decentralized, it was becoming more concentrated in steel

² Hogan cites Report of the Commissioner of Corporations on the Steel Industry, Part I. 1911. United States Department of Commerce and Labor, Washington, D.C.: Government Printing Office. See also Gertrude G. Schroeder (1953, pp. 36-38).

³ "Machinery, comparatively new, was scrapped to make room for more modern equipment" (Cotter 1916, p. 7). Similar steel industry developments were occurring elsewhere in the major capitalist countries as well. For example, the German steel industry was undergoing a similar centralization of steel production involving development toward mass production of steel accompanied by scrapping of plants (cf. National Industrial Conference Board 1931, p. 82). See also Walker's (1906, pp. 353-398) turn-of-the-century account of the German Steel Syndicate, a state-recognized monopoly. This study compares concentration of German steel production to the development of the United States Steel Corporation. In 1926, the Vereintigte Stahlwerker, A.G. (United Steelworks Corporation) was formed in Germany through a combination of the largest steel manufacturing and mining trusts of Germany (National Industrial Conference Board 1931, p. 82).

producing districts in and around Pittsburgh, Chicago, Cleveland, and Youngstown.

In the 1880s the iron and steel industry was comprised of many small companies with production capacities of 3,000-15,000 net tons of iron and steel products. There were also about a dozen or so medium sized companies with capacities of from 15,000-75,000 net tons along with a handful of large companies with capacities of more than 75,000 net tons (Hogan 1971, p. 235).⁴ From 1880-1890 there were still several hundred small companies, and before the turn of the twentieth century, the American steel industry was made up of about 500 separate and competing firms (Schroeder 1953, p. 36). But by 1892, "Large companies had grown considerably as several had expanded their capacity beyond 250,000 net tons and two, Carnegie Steel and Illinois Steel, boasted 1 million tons of steelmaking capacity" (Hogan 1971, p. 235; see also Schroeder 1953, p. 36). The larger size of companies and the vast increases in production capacity of independent producers characteristic of the post-Homestead period both reflected and necessitated concentration of markets, centralization of

⁴ These large companies were located both east and west of the Allegheny Mountains (four east, five west with two of these in the Chicago area). Of steel companies with over 100,000 tons of capacity, those east of the Allegheny Mountains included: (1) Albany Renselaer Iron and Steel, 180,000 tons capacity; (2) Lackawana Iron and Steel Company, 168,000 tons; (3) Bethlehem Steel Company, 135,000 tons; and (4) Pennsylvania Steel Company, 250,000 tons. Those west of the Allegheny Mountains were: (1) Cambria Steel Company, 200,000 tons; (2) Edgar Thomson Steel Works, 450,000 tons; (3) Cleveland Rolling Mill Company, 110,000 tons; (4) Joliet Steel Works, 150,000 tons; and, (5) North Chicago Rolling Mill Company, 200,000 tons.

capital under particular firms, and with these, the proliferation and refinement of corporate organizational structure.⁵

Domestically, the drive toward consolidation can be accounted for with reference to two immediate and interrelated conditions, each having a bearing, as recognized by Hogan (1971, p. 236), on the process of monopoly formation in the steel industry. First is the "oversupply problem," definitive of the intra-industry competitive situation within the domestic economy, and in the steel industry resulting in a period of low demand through the decade from 1890-1899 (Temin 1964, p. 188). Thus, consolidation as a broad strategy of market control and corporate combination as a tactic to achieve it were responses rooted in a "desire by many companies to fortify themselves against the instability of the market" (Hogan 1971, p. 236). In the iron and steel industry this oversupply/under-demand problem reflected the situation where American furnaces were increasing in capacity and outstripping the ability of existing markets to absorb surplus. Such a problem resulted from intense competition between small firms trying to break free of the constraints of local markets, so combination was pursued by many firms as a way to stabilize production and marketing and end "ruinous competition" (Bryant and Dethloff 1983, p. 169, and Heilbroner and Singer 1984, pp. 200-204⁶).

⁵ Along these lines, Chandler (1962, p. 14, and 1977, p. 451) discusses the need of establishing corporate organizations more capable of coordinating activities, for example by replacing single, general administrative offices with subdivisions coordinated by a central office. As firms increase geographic scope and command over production, they develop wider and deeper organizational structures.

⁶ Heilbroner and Singer (1984, p. 200) refer to this statement by J.P. Morgan which, as they say, captures the "spirit of the age," "I like a

Even though the tenets of Social Darwinism were extolled as the highest virtues, competition was viewed by the capitalists of the "Gilded Age" as destructive.

Secondly, the oversupply problem was compounded by fluctuations in the economy, especially regarding inter-industry relations. Specifically with regard to the domestic steel industry, the fortunes of steel producers were closely tied to conditions in the railroad industry and especially in fluctuations in the market for rails. For example,

...when poor harvests in 1881 reduced the prosperity of the railroads, the iron and steel industry was so adversely affected by the decline in rail purchases that Bessemer rail prices declined from \$60 to \$50 during the first few months of the next year (Hogan 1971, p. 236).

Basically, the drive toward centralization and concentration in American industry in general, and in the iron and steel industry in particular, was tied to the importance of combination as a "buffer" against competition and fluctuations in prices created by restricted markets (Hogan 1971, p. 237). The importance of combination in the steel industry as a solution to market "vagaries" is further illustrated by the fact that rail prices from the late nineteenth through the opening of the twentieth century fluctuated wildly. From 1880 to 1901, the monthly average price for rails could vary anywhere from between

little competition, but I like combination better." Cotter (1916, p. 10) comments that,

The frequent and prolonged periods of depression had forced upon steel makers the conviction that some way of combining to prevent their recurrence was desirable, even necessary, if the United States was to keep and increase its lead in the manufacture of the metal most needed by the age. Between the years 1890 and 1900 combinations in the industry were as thick as the leaves of Vallambrosa.

\$16.50 to \$85 per ton. It was not until the formation of the United States Steel Corporation in 1901 that rail prices were held steady staying around \$28 per ton until about 1916 (Heilbroner and Singer 1984, p. 204 and Temin 1964, p. 192).

Thus, the nature and conditions of capitalist competition and the resultant state of markets in the last decades of the 1800s provided the impetus to the consolidation and the rise of big business since restricted profits made expansion necessary. "Production was forced to a new and wider scale...the time was ripe for consolidation" (Edwards 1979, p. 42) as firms sought organizational solutions to the problems of accumulation that they faced.

Tactics of Combination in the Late Nineteenth Century: Vertical and Horizontal Integration as Organizational Solutions to "Ruinous Competition"

Because of the volatile nature of competition, capitalists form monopolies to protect themselves. Ernest Mandel (1968, p. 401) has noted, "In order to protect, maintain or increase their rate of profit, capitalist enterprises arrive at understandings or enter into agreements to collaborate which take a great variety of forms." Hogan (1971, pp. 237-238), among other commentators, identifies three basic forms of combination into which firms entered in the late nineteenth century and which were most important in the specific case of the formation of the American steel industry prior to the establishment of the United States Steel Corporation in 1901. These were the pool, the trust, and the holding company. Mandel (1968, p. 401) draws a distinction between pools and so-called gentlemen's agreements. According to his typology, gentlemen's agreements are

voluntary in nature and refer to agreements between producers "not to sell below certain prices or in certain areas." The same is true of pools, yet they are distinguishable from gentlemen's agreements insofar as market sharing between producers is more specifically defined. That is, "They envisage...a definite division of the market" (Mandel 1968, pp. 401-402), for example, the rail pool allotted definite control over percentage shares of the market to firms based on capacity (Warren 1972, p. 99, and cf. Berglund 1907, pp. 34-35). It must be understood that while the difference between the pool and the trust, for example, is definitely one of kind, that between the pool and the gentlemen's agreement is only of degree, each describing a fairly informal community of interest between separate producers.⁷

In the 1870s, the "pool" or "gentleman's agreement" was an important way of establishing minimum prices, dividing markets, and coordinating production. Pools were easy to establish and provided checks on competition at the same time that businesses could be managed independently. These were widely used during the period when industry was most decentralized. In steel, there were pools for producers of every kind of steel product, e.g., the rail pool, wire pool, nail pool, plate pool, etc. (Ripley 1916, pp. xiii-xvi; Cotter 1916, p. 5; Temin 1964, p. 175; Hogan 1971, pp. 237-238; and Heilbroner and Singer 1984, pp. 196-197).

⁷ See Jones's (1926, pp. 7-8) work on the nature of trust formation in the early twentieth century. Jones makes even more refined distinctions between "the gentlemen's agreement; ...the speculative pool; ...the regulation of output pool; ...the division of the field pool; ...the selling agency; ...and the patent pool."

Pools were usually established during periods of crisis but fell apart when conditions would improve--they were informal and so not very reliable.⁸ During times when price agreement was most necessary, such as during periods of low demand, nothing prevented individual parties to such agreements from trying to break out if they could achieve some advantage that could be translated into profitability (cf. Durand 1920, p. 13, and Ripley 1916, pp. v-xxdii). In fact it appeared that parties to these agreements would look for the right time to leave them and in this way attempt to surpass their competition. For example, Carnegie pulled his company out of the rail pool following the Homestead Strike after achieving an advantage of labor control, a relatively lower wage bill, and economy of production through mechanization, and with these, the opportunity to lower the price of rails by \$5 per ton (Brody 1960, pp. 6 and 51, and Hacker p. 345). Pools variably increased coordination between companies, and since they were formed around single products they describe a type of horizontal relationship between firms, but not integration.

In the 1880s, the trust form emerged with the "invention" of the Standard Oil Company in the 1870s. The replacement of pools by trusts represented a shift to direct control of production and markets

⁸ Cotter (1916, pp. 5-6), for example, relates the following:

According to the statements of men who themselves took part in pools, it was no uncommon thing for a manufacturer to station a salesman outside the building where a pool conference was being held and, as soon as a price settlement was reached, to stroll casually over to a window and by prearranged signal indicate to him the level agreed on, whereupon the salesman would proceed to undercut the price which his employer was even then pledging himself to maintain.

by firms as competitors were brought under the command of single companies. Trusts were formed when stockholders of competing companies turned over voting stock to trustees in exchange for certificates which entitled them to receive interest but not to vote (Hogan 1971, p. 238; Jones 1926, p. 20; and Heilbroner and Singer 1984, p. 199).

In 1890, the anti-trust animus of the working and middle class reform movement led to the passage of the Sherman Anti-Trust Act⁹ which prohibited consolidation of companies "in restraint of trade." The law was variably enforced and ignored owing to the ambiguity of

⁹ Edwards (1979, pp. 65-66) argues that the anti-trust reform movement in the latter part of the 1800s and early 1900s had its origin in the nature of class relations at the time. Middle-class reformers and certain factions of the working-class, such as those represented by conservative labor unions, sought through the anti-trust movement to challenge the power of the biggest capitalists and largest consolidations. There is another side to the class character of anti-trust policy illustrated by the fact that the Pullman Strike was broken in 1894 through the threat of the use of state military force and the enforcement of the Sherman Anti-Trust Act (Brecher 1972, p. 66; and Beaud 1983, p. 128). "Forty five strike leaders were indicted in Federal Court for violating the Sherman Anti-Trust Act" (Brecher 1972, p. 66), the union and the strike found to be in restraint of trade. On another occasion, the Supreme Court in 1908 found the Danbury Hatters to be in violation of the Sherman Anti-Trust Act for organizing a boycott which they concluded was in restraint of trade. With reference to the same case, lower courts found that any national union, to the extent that it represented all workers, constituted a monopoly and was therefore illegal (Hays 1957, p. 67). Anti-trust policy was therefore simultaneously an outcome of resistance to the power of big capital and used against those challenging this power. Wolff (1965, p. 4) notes that under capitalism there are two contradictory sets of ethics. One states a belief in the "combination of capital...as in accordance with natural law" and the other views "combination of labor as a conspiracy." The use of such laws as the Sherman Anti-Trust Act against labor unions makes this contradiction salient. See also Gregory's (1946, pp. 200-222) discussion concerning the use of federal authority to limit union power.

its language concerning what actually constitutes restraint of trade. This was compounded by the fact that the Supreme Court not only obligated itself to prove "monopolistic intent or attainment," but also the more difficult legal task of interpreting such intent as constituting 'good' or 'bad' restraint (Ripley 1916, p. 495, and cf. Gregory 1946, p. 201). But it was not just problems of interpretation of the law that led to the variability of its application, and these legal difficulties need to be placed in political context. Edwards (1979, p. 65) addresses this issue in his account:

The anti-trust campaign would not have been possible if it had not reflected the needs of a broad multiclass opposition to the corporations. Enforcement required mobilizing the powers of government against the biggest capitalists. Yet the state is merely an arena in which class relations take an explicitly "political" form, and it would certainly be wrong to suggest that the state during the transition period was not dominated by the capitalist class. Nonetheless, conflict within the capitalist class created a situation in which the state apparatus gained a relative degree of autonomy, and other groups (professionals and intellectuals, for example) were able to play a greater role in determining state policies.

The establishment of anti-trust policy was thus an outcome of inter- and intra-class political dynamics. Here, Edwards asserts that its enforcement, or lack of enforcement, was an outcome of the general defense of the interests of big capital. This is further supported by the fact that laws like the Sherman Anti-Trust Act and the Clayton Anti-Trust Act, which prohibited interlocking directorates, did little to stem the tide of corporate consolidation and the merger movement (Edwards 1979, p. 66; and Bryant and Dethloff 1983, p. 169). As noted by Beard and Beard (1960, p. 311), the Sherman Anti-Trust Act

of 1890 "was neither imposing nor effective. For a long time presidents allowed it to sleep on the books."

However ineffective anti-trust legislation was in curbing the appetite of giant enterprises, Edwards (1979, p. 66) also observes that such policies of the state at least added "an element of uncertainty to the operations of big corporations" insofar as their directors, at least for a time, had to consider whether or not certain corporate merger activities would bring them under the scrutiny of the state and the public.¹⁰ Bryant and Dethloff (1983, pp. 169-170) note that this situation led to a search for a more legally acceptable way of building corporations.

The solution was to move away from the traditional trust form of combination to that of the holding company form in the post-1890 period where a single firm held a controlling share of the securities of subordinate firms. Bryant and Dethloff (1983, p. 169) describe the holding company, to which the word trust came to be generically applied, as an especially important concentration strategy after the New Jersey legislature passed an incorporation act favoring it in 1889.

¹⁰ Edwards (1979, pp. 67-68) notes that World War I gave corporate capitalists "a context in which public support and the power of the state could be swung decisively on their side." To the extent that any anti-trust actions were taken against corporations, these happened before the war. After the war, no dissolutions were handed down by U.S. courts especially since the needs of war mobilization provided an ideological atmosphere wherein monopoly size, by virtue of command over production that this implied, came to be associated with national security. In 1920, even though the market share of the U.S. Steel Corporation had at one point reached 80 percent, the Supreme Court refused to dissolve it. "The Court decided that mere size did not violate the Sherman and Clayton Anti-Trust Acts" (Bryant and Dethloff 1983, p. 170).

New Jersey law provided legal support for the direct merger of companies since it allowed one corporation to itself own the stock of another--a practice previously not allowed during the age of the traditional trust (Hielbroner and Singer 1984, p. 200). As a consequence, it was under the laws of this state that many of the mergers of the 1890s took place. By 1904, 170 of the 318 largest combinations were incorporated in New Jersey, which collected important revenue through incorporation fees, and required a minimal connection with the chartering firm such as rental of desk space in the state, display of a corporate sign, and submission of a pro forma annual report. Soon after this, New York, Delaware, Pennsylvania, West Virginia, Maine, North Dakota, and Nevada established similar incorporation laws in order to reap the benefits of being what Ripley called a "charter-barter state" (1916, pp. xvii-xx; see also Moody 1904, pp. 453-467, and Hacker 1968, p. 425).

From 1897 to 1903, the interval covering the formation of the United States Steel Corporation, Hogan (1971, pp. 238-239) states:

In this six-year period, the number of combinations rose from 12 to 305 with an increase in aggregate capital from under \$1 billion to nearly \$7 billion. By 1904, these firms controlled nearly two fifths of the capital invested in manufacturing in the United States.

Between 1898 and 1900, 11 large mergers in the steel industry involving nearly 200 previously independent companies took place. Financial backing for most of these was provided by three great trusts headed by Andrew Carnegie, J.P. Morgan and W.H. Moore. Mergers, besides making for greater opportunities to accumulate profits, facilitated combination vertically and horizontally since corporations could

directly own competing companies and the companies of suppliers, finishers, and distributors, therefore integrating product lines, coordinating processes, and securing markets. The transition from the pool to the holding company, from temporary truces in times of trouble to mergers, represented the passage from price competition to competition between capitals over direct control of all aspects of production--that is, from price competition to competition over control of capital. Monopolization is not a process which eliminates competition but it is one wherein firms attempt to eliminate competitors. Again with reference to the year 1904, the 318 combinations centralized control over 5,288 separate factories (Brody 1980, p. 8). The history of the steel industry provides an example of the central role played by abandonment, dismantling, and shutdown of factories as an aspect of this extensive control in the processes of monopolization and industrialization.

Factory Closures and the Rise of the Steel Industry: Competition and Control

This section begins a discussion of the formation of the great steel trusts which, separately, dominated steel production in the United States until their merger into the United States Steel Corporation in 1901. The Steel Corporation and its constituent trusts were themselves products of a great deal of merger activity (Herman 1981, p. 83), and, it is understood, were born of the Merger Movement which lasted from the 1890s to the turn of the century and beyond. The focus here is on the development of the domestic steel industry prior to the formation of United States Steel Corporation and the

integral role of factory closures in this development. In the areas of basic and fabricated steel production, total and partial, temporary and permanent abandonment, dismantling, and closure of factories can be situated in the process whereby firms sought to overcome competition by extending horizontally and vertically through mergers their control over products, processes, and markets.

In the process of steel industry formation, and as firms extended their control over production and struggled over control of markets--locally, interregionally, and internationally--plants were left idle. Several examples stand out and these will be emphasized. The establishment of Carnegie Steel Company's command over steel production in Pittsburgh involved the idling of the Homestead Works in 1883 and the Edgar Thomson Works in 1884. Subsequent competition between Carnegie Steel and the Illinois Steel Company for control of western steel production and resources led at one time to the idling of most of the steel plants in the Chicago area, until Illinois Steel was merged into Morgan's Federal Steel Company. Internationally, American tin plate production provides an example of an industry which rose to pre-eminence in a climate of protectionism and where industrialization in the domestic context was accompanied by "runaway shops" and capital flight from Great Britain. In this period of rapid and massive industrialization culminating in the formation of the United States Steel Corporation, Moore's American Tin Plate Company came to dominate this area of steel fabrication by buying and shutting down the plants of competitors. Similarly, Shelby Seamless Steel Tube Company, a trust which eventually came to control nearly ninety percent of all tube production in the United States, established its

position in part by buying and then shutting down or dismantling the plants of competing manufacturers. Also, in the quest to break its dependence on basic steel producers, American Steel and Wire Company, which controlled seventy-five percent of the nation's wire making capacity, at one time closed one-third of its plants.

In these and other instances, idled capacity, dismantled facilities, abandoned plants and shutdowns enter into the process of capitalist competition horizontally, vertically, and spatially. If factory closures have played a role in the building of the steel industry, i.e., in industrialization, in the domestic context, then the way such events are currently conceptualized in sociology must be questioned. In beginning this re-evaluation we turn to the history of factory closure in the formation of the United States steel industry.

Carnegie Acquires the Homestead Works: Idled Plants and the Labor Issue within Capitalist Competition

The favored position of the Carnegie Steel Company, anchored as it was around the Edgar Thomson Works, at Braddock, Pennsylvania, was accomplished during the 1880s and 1890s through rapid horizontal and vertical growth. Horizontally, Carnegie was able to acquire the steel mills of competitors in the Pittsburgh area. The two most important acquisitions were those of the Homestead Works in 1883 and the Duquesne Works in 1889. Vertically, Carnegie established control over sources of raw materials and transportation facilities.

The Steel Company's most important link was that established with H.C. Frick and Company in 1882 (Hacker 1968, p. 346, and Hogan 1971, pp. 243-244). Through the company's ties with Frick,

Carnegie Company had virtual command over the Connellsville coal fields, coke processing, and transportation.¹¹ For a time, the link between Frick and Company and the Edgar Thomson Works made the Carnegie Company the undisputed leader in the Pittsburgh steel district.

Carnegie Company's control over steel production in Pittsburgh began with the acquisition of the plants of competitors in the area, first with the acquisition of the Homestead Works in 1883 and the Duquesne Works in 1889. In 1879, a group of Pittsburgh industrialists--combining the independent mill companies of Park Brothers and Company; Hussey, Wills and Company; Singer Nimich and Company; Crescent Steel Works; Solar Iron and Steel Works; and Superior Mill, all of which were located in Pittsburgh--organized the Pittsburgh Bessemer Steel Company, Ltd. at Homestead, Pennsylvania, for the production of rails and structural shapes. The Pittsburgh Bessemer Steel Company, concerned with the production of finished steel products, had no capacity for making basic steel and depended largely upon Carnegie's Edgar Thomson Works for its steel input. Since the Edgar Thomson works were closely allied with and a major supplier of

¹¹ In 1871, Frick and Company of Connellsville, Pennsylvania, owned 300 acres of coal lands in Connellsville, an area known for the high quality of its coal and its suitability for making pig iron used in steel production. Frick also held fifty of the four hundred total coking ovens in the Connellsville area and, in addition, became heavily involved in the Mount Pleasant and Broad Fork Railroad. By 1872, Frick owned 200 coke ovens (Hogan 1971, p 243) and so had become established as a leader in the mining, processing, and transportation of coke. In 1882, the Carnegie Company acquired a minority interest in the Frick Company, which by that time owned 3,000 acres of coal lands (Hacker puts the number at 5,000 acres) and 1,026 ovens producing 6,000 tons of coke per day (Hogan 1971, p. 244; and Hacker 1968, p. 346).

rails to Pennsylvania Railroad, Pittsburgh Bessemer's orders for steel were cut off and the new company set out to break its dependence on Carnegie once and for all by moving into basic steel production itself (Hogan 1971, p. 244; Temin 1964, pp. 179-180; Brooks 1940, p. 23; and Bridge 1903, p. 151).

In 1880, Andrew Kloman of Superior Mill began construction of a basic steel producing facility at Homestead. At the same time the Pittsburgh Bessemer Steel Company began construction of a plant adjacent to Kloman's which was completed in 1881 (Hogan 1971, p. 244). Upon his death, the Kloman works were immediately bought and subsequently put into operation by Pittsburgh Bessemer (Bridge 1903, p. 152). It was these facilities at Homestead which were later to fall into Carnegie's hands.

Soon, the plant at Homestead would prove a competitive threat to the Edgar Thomson Works (Hogan 1971, p. 245, and Temin 1964, p. 180). Bridge (1903, p. 245) commented that,

Councils of war were held once more on Braddock's Field;¹² for it looked as if the prosperity which had hung so lovingly over the Edgar Thompson works had now crossed the river and alighted upon the rival enterprise at Homestead.

But, perhaps fortunately for Carnegie, Pittsburgh Bessemer's operations at Homestead were, in Hogan's (1971, p. 245) terms, "beset with labor troubles," which in the end contributed to the passage of the Homestead Works to Carnegie.

¹² The reference, apparently, is to General Braddock's defeat in the first battle of the French and Indian War in 1755. The wilderness conflict was fought in what was then Pennsylvania's western frontier.

It is generally recognized, with varying degrees of emphasis on the issue, that the failure of the Homestead Works under the command of Pittsburgh Bessemer and its eventual acquisition by Carnegie Company was an outcome of the state of labor relations which predominated at the plant. It is held that the downfall of Pittsburgh Bessemer coincided with a strike against the ownership of the company upon the opening of the Homestead Works in 1882 over the issue of unionization (Temin 1964, pp. 180-181; Hogan 1971, p. 245; Bridge 1903, p. 153-154; Fitch 1911, pp. 108-109; Casson 1907, p. 111; and Hendrick 1932, p. 301).

The accounts of the acquisition of the Homestead Works by Carnegie Company suggest that the issue of labor relations between a firm and workforce enters into the process of capitalist competition. Temin (1964, p. 180-181) correctly places labor difficulties at Homestead along with the relation of Pittsburgh Bessemer to other steel producers in explaining the failure of the company. First, Pittsburgh Bessemer was excluded from participation in the Bessemer Association, an affiliation of rail producing companies which consciously attempted to restrict the growth of competitors (Temin 1964, p. 179). Carnegie's refusal to fill the orders of Pittsburgh Bessemer from the Edgar Thomson Works was an aspect of this relationship.

Secondly, the antagonistic relationship between Pittsburgh Bessemer and the Bessemer Association made it difficult for the new company to acquire patents and so was forced into using a less efficient and costlier steel making process which placed it at a disadvantage in relation to its competitors. Temin (1964, p. 181) argues that these factors, the exclusion of Pittsburgh Bessemer from the Associa-

tion and patent restrictions account most strongly for the downfall of the company. He therefore de-emphasizes the importance of labor relations and emphasizes instead factors associated with capitalist competition. Hogan (1971, p. 245), relying on Bridge's (1903) account, attributes the failure of Pittsburgh Bessemer almost exclusively to the volatile nature of the relationship between the company and its workforce. However, relations between labor and capital and capitalists with each other cannot properly be considered two separate areas of concern. If the labor situation at Homestead in 1882 is considered in relation to that at Carnegie's Edgar Thomson Works and Carnegie's own reflections on the labor issue in the years before the Homestead Strike of 1892, then it is apparent that the issue of labor relations itself enters into the cycle of capitalist competition as does, therefore, the issue of idled plants. When one firm has established and maintained stable labor relations relative to other firms, then the first is in a competitively advantageous position. In this process, factory closure is an aspect of labor control.

Of greatest consideration here are the openly anti-union policies of Pittsburgh Bessemer Steel Company which Bridge (1903, p. 153) describes as "unreasonable and arbitrary" and "ever tending to open conflict with the workmen." Upon opening the Homestead Works, Pittsburgh Bessemer ordered its workers to sign contracts wherein they would agree to have no associations with labor organizations (Hogan 1971, p. 245; and Fitch 1911, p. 109). According to Bridge's (1903, p. 154) account:

Most of the men were members of the Amalgamated Association of Iron and Steel Workers; and on the 1st of January, 1882,

these refused to sign the agreement, and were locked out. After the works had been idle a week, the company gave notice that the men could not return to work, even if they signed the agreement, unless they would accept a reduction of wages. This intensified the bitterness of the workmen; and the Amalgamated Association took cognizance of the dispute.¹³

Nearby stood the Edgar Thomson Works which was started up non-union in 1875. However, in 1882, unionization became an issue there as well but Carnegie offered no resistance to the establishment of Amalgamated Association lodges in these works, referring to the Union as a "fair and reasonable body," and "union activity in Braddock ...was never of a sort to alarm employers" (Fitch 1911, pp. 88-89 and 111). At the Homestead Works of Pittsburgh Bessemer, the lockout, along with work stoppages orchestrated by the union, and other manifestations of labor-management conflict interrupted production through January, February, and most of March of that year (Fitch 1911, p. 109, and Bridge 1903, p. 154). In a climate of falling prices and profits in steel production, the stockholders of Pittsburgh Bessemer Steel wanted out of Homestead.

Carnegie seized the opportunity to acquire a modern plant at low cost and at the same time eliminate an important rival from the field. In 1883, the Pittsburgh Bessemer Steel Company was consolidated with the Carnegie Company and its Homestead works taken over in the process (Hogan 1971, p. 245; Hacker 1968, p. 346; and Fitch 1911, p. 88-89). "The price paid was the cost of the plant, with reasonable allowance for increased land values" (Bridge 1903, p. 159).

¹³ Because Pittsburgh Bessemer could not economize technically, as an outcome of its patent problems and its relation to the Bessemer Association, the staunchly anti-union stance of the firm and its attempt to economize on wages logically follows.

When Carnegie took control of the plant, it was taken out of rail production, converted to the production of structural shapes, and renovated to include those things that patent restrictions had prevented Pittsburgh Bessemer from building into the plant. In the process, the Homestead works were idled by Carnegie Company for several years until these changes were completed (Temin 1964, p. 181; and Wolff 1965, p. 58).

This history of labor conflict at Homestead, which led up to Carnegie's taking control of the Homestead works, clarifies Carnegie's favorable, pre-1892 view of labor and the right of workers to organize to which we alluded in the previous chapter. In his Forum article of 1886, Carnegie states, "A strike or a lockout is, in itself, a ridiculous affair" (Carnegie 1886, p. 115) and that the right to organize is a basic right which employers must concede to employees, but, for labor's part,

It is not the intelligent workman, who knows that labor without his brother capital is helpless, but the blatant ignorant man, who regards capital as the natural enemy of labor, who does so much to embitter the relations between employer and employed; and the power of this ignorant demagogue arises chiefly from lack of proper organization among the men through which their real voice can be expressed (Carnegie 1886, p. 119).

For Carnegie, this "real voice" is that of a labor force organized in a climate where employers recognize workers' rights to organize. It is a voice of reason, where the laborer "will be found much readier to accept reduced compensation when business is depressed" (Carnegie 1886, p. 119).

As long as the rivals of the Steel Company were "beset with labor difficulties," Carnegie's stated philosophy would be one of enlightened

partnership with regard to labor relations. But, as was seen in the discussion of the Homestead Strikes of 1888 and 1892, when competitors were sufficiently absorbed by the Steel Company to permit multi-plant operations with advancing mechanization of production undermining the political influence of craft-based labor power, Carnegie turned from such lofty ideas. This is apparent in the Steel Company's clearly anti-union position of the late nineteenth century.

In fact, unionization at the Edgar Thomson Works was quite short lived and in 1884, it was announced that the works would be closed indefinitely while new machinery was being installed in the factory at Braddock. This would put 1,600 workers out of work until the mill reopened and permanently do away with 300 jobs (Fitch 1911, pp. 112-113; and Brody 1960, p. 51). Concerning these events, Fitch (1911, p. 113) observed:

The company seemed to be in no hurry to start the mill. Andrew Carnegie, in an interview, said that the workmen were to blame for the suspension. "They allow other Bessemer mills to work at less wages than we pay." He referred to a mill in Harrisburg which was selling rails at \$27. "We cannot do it, and must close rather than sell rails at less than cost....I do not know when they [Braddock and Homestead] will be started, but not until the rail market improves and we can sell at a profit, or until the Amalgamated Association gains control of the other mills in the country and makes better wages in those establishments."

Fearing discharge, many of the workers left the Amalgamated Association and when the Edgar Thomson Works were finally reopened in 1885, the year before Carnegie's article appeared in Forum, it started up with reduced labor force, at up to fifty percent reduction in wages, and with its two lodges of the Amalgamated Association disbanded (Fitch 1911, pp. 113-114).

Threatened and actual closure of factories places workers in competition with each other and with workers at other locations over wages and jobs. This situation can be ideologically deflected against demands imposed by the current conditions of competition between capitalists (cf. Slaughter 1983, p. 41). The shutdown of the Edgar Thomson Works is an example of the place of factory closures within the process of job destruction and its impact on the political standing of labor unions.

In 1886, the same group of investors which organized Pittsburgh Bessemer also organized the Duquesne Steel Company, since by then the patents which they had originally been denied, had run out (Temin 1964, p. 182). This company, later known as Allegheny Bessemer Steel, was organized for reasons similar to those which lead to the original formation of Pittsburgh Bessemer. This time, the company was excluded from membership in the rail pool, the first one of which was established in 1887 and of which Carnegie Company was a leading member (Warren 1973, p. 96). Allegheny Bessemer also failed and eventually would be purchased by Carnegie Company for similar reasons (Bridge 1903, p. 175).

When Allegheny Bessemer Steel went into operation in 1889, it posed an immediate threat to the competitive position of the Carnegie Steel Company and the Edgar Thomson Works because of its innovative rail-making process with which it could undersell the works at Braddock (Wolff 1965, pp. 58-59). It is described by Hogan (1971, pp. 246):

In place of reducing the steel ingot to a bloom and then reheating it before it was rolled down to rail, the new company rolled

rails directly from ingot without the intermediate process employed by Carnegie and other rail makers...and as a consequence, rails could be sold cheaper than those made by the conventional method.

In response, Carnegie issued statements to railroad companies voicing concern over the dangers of what he called the "direct rolling process," claiming that it produced inferior rails and would lead to a greater number of train derailments. Railroads were fairly successfully persuaded against the purchase of Duquesne rails (Hogan 1971, p. 246; Hacker 1968, p. 350; Temin 1964, p. 182; Wolff 1965, p. 58; and Bridge 1903, pp. 176-177).¹⁴

Poor sales combined with labor difficulties for the management of the Duquesne works eventually led to the sale of the company to Carnegie Steel for a very favorable price. When Carnegie acquired Duquesne Steel, direct rolling was adopted in all of his rail producing facilities--that is, Carnegie adopted what he had publically objected to before the acquisition of the Duquesne works. Eventually, direct rolling became an industrywide practice (Bridge 1903, p. 176). The purchase of Duquesne in 1890 left the Carnegie Steel Company without a rail competitor in its territory, and the Duquesne Works were run by Carnegie with great success (Hogan 1971, p. 247; and Bridge 1903, p. 179).

The Duquesne Works were bought the year following the first round of labor disputes at Homestead in 1889. It remained a non-

¹⁴ Cotter (1916, p. 6) noted, with the nostalgia one feels for the days of piracy on the high seas, "In the fierce and bitter struggle that was the steel trade, only the most daring or the most unscrupulous manufacturer could survive...." This episode also calls into question Temin's (1964, p. 182) conclusion that the story of Pittsburgh Bessemer demonstrates the importance of "exclusive patent ownership."

union shop and its addition gave the Carnegie Company a multi-plant organization large enough to contribute to the resolution of the Homestead Strike of 1892 in its favor and which banished organized labor from basic steel production.

Carnegie Steel Company, Illinois Steel, and Morgan's Federal Steel Company: Idled Plants and Interregional Competition

The first large consolidation in the steel industry took place in May of 1889 with the formation of the Illinois Steel Company. Illinois Steel was a merger of Chicago area steel companies formed in response to Carnegie's integrated operation and monopolistic dominance of Pittsburgh which was seen as powerful enough to potentially "disrupt the market through independent action" (Temin 1964, p. 191). This holding company consolidated North Chicago Rolling Mill Company, Union Steel Company, and Joliet Steel Company (Temin 1964, p. 191; and Hogan 1971, pp. 239-240). The consolidation of these three previously independent and competing concerns gave Illinois Steel an important measure of horizontal control over basic steel production, access to the expanding western market, and with its vertical command over coal and coke lands the company dominated the steel industry in the Chicago area. The Illinois Steel Company coordinated the operation of five plants (Hogan 1971, p. 240) including:

- North Works at Chicago (established 1857);
- South Works at Chicago (established 1880);
- Milwaukee Works at Milwaukee (established 1868);
- Joliet Works at Joliet, Illinois (established 1868); and

- Union Works at Chicago (established 1863).

The size of the firm is indicated by the combined properties of these plants, which included 14 blast furnaces, one iron rolling mill, four Bessemer steel plants and mills which produced rails, beams, merchant iron and steel, nails and iron rods. This gave the Illinois Steel Company a capacity of 975,000 tons and it employed 10,000 workers, putting the firm, in terms of size and capacity, on an equal footing with Carnegie Company.

In 1892, the Illinois Steel Company underwent a massive "modernization" of its plant, including the addition of plate and structural steel mill capacity. On the first of July of the same year--the day the Homestead Strike began--Carnegie Steel Company underwent a major reorganization and was transformed into a holding company, Carnegie Steel Company, Ltd., which consolidated all of the Carnegie interests under one centralized organizational framework. Bridge (1903, p. 254), without clarification, notes as "something more than a coincidence" that this reorganization went into effect on the first day of the strike. However, it is apparent that the reorganization of the firm and the conversion of the workforce from a craft based to an industrial one were complementary aspects of the process in which Carnegie Company was expanding the scale of its production, and, as stated by one of Carnegie's partners, "The Amalgamated placed a tax on improvements, therefore the Amalgamated had to go (Brody 1960, p. 54; Wolff 1965, p. 82; Brecher 1972, p. 54; and cf. Brody 1980, pp. 7-9).

Having established control over steel production in Pittsburgh, Carnegie was preparing to take Horace Greely's advice and "Go West!," thereby challenging Illinois Steel's command of Chicago.

Carnegie's challenge to the west began in 1893, a year of depression in the steel industry. Carnegie Company was not affected, however, to the extent that other producers were. Nationally, rail production was down 26.7 percent. Carnegie's Edgar Thomson Works suffered only a 20.3 percent decline, but in Illinois, output was down 48.3 percent and,

...there were times when every mill in the Chicago area was idle. Union rail mill did not work at all that year, North Works was laid off during the last half, Joliet ran for only six weeks, and the South Chicago Works...operated for only eight and a half months (Warren 1972, pp. 96-97).

Throughout the mid-1890s, this situation continued for Illinois Steel and the with it, the Chicago market was open to Carnegie Steel Company.

Having achieved production cost lower than any other producer could match, Carnegie left the rail pool and it subsequently collapsed (Jones 1926, p. 9; Brody 1960, p. 6; Carr and Taplin 1962, p. 171; and Warren 1972, p. 96).¹⁵ From 1892 to about 1896, Carnegie Company was engaged in an acquisition drive directed at improving its level of vertical command over processes and expanding its sphere of influence into western markets. Carnegie acquired railroads, steamship lines, and five-sixths of the stock of Oliver Mining Company which gave him access to Great Lakes iron ore fields and transportation (Hacker 1968, p. 351; and Hogan 1971, pp. 248-249), directly challenging access of western producers to these resources.

¹⁵ Although the rail pool was re-established before the end of 1893, it was never again effective (Warren 1972, p. 97).

The Carnegie Company's most important association was established in 1896 when the firm entered a lease agreement with Lake Superior Consolidated Iron Mines (LSCIM), an iron ore mining and transportation concern owned primarily by Rockefeller Standard Oil interests. The agreement was important to both Carnegie and Rockefeller concerns, but especially gave the former access to vital supplies of high grade Lake Superior iron ore, since in addition to its ore docks at Ashtabula, Ohio, LSCIM held interests in eleven mining companies in the Mesabe region of Lake Superior. Through the vertical merger of ore and coal mining and processing concerns, direct control over transportation concerns, and the association with Rockefeller, Carnegie Company became the largest single unit in the steel industry (Hogan 1971, pp. 253-254) and could compete directly with western manufacturers over inputs necessary for steel production (Warren 1971, p. 104).¹⁶

In spite of an agreement between Carnegie Company and Illinois Steel to the effect that Carnegie would limit itself to its eastern market, competition was carried into the territory of Chicago mills (Brody 1960, p. 7; and Warren 1972, p. 99). A price war ensued in earnest. Warren (1972, pp. 99-100) describes events of 1897:

Illinois rail production was 40.1 per cent up on 1896 but that of Allegheny County [Pennsylvania, where Carnegie's mills were located] went up by 76.3 per cent. Connecting through to the

¹⁶ Carnegie Company's advantage in this area was such that freight costs of ore and coke to Pittsburgh amounted to \$3.65 per ton of pig iron, while shipment of these things to Chicago amounted to \$3.79 per ton of pig iron. Contributing to Carnegie's favorable position was the relationship with H.C. Frick Coke Company which allowed the Steel Company to circumvent the open market (Warren 1972, p. 104).

lakes by the Bessemer and Lake Erie Railroad, Carnegie could deliver cheaply in the north-west when the Great Lakes navigation was open, and in the south-west when the Ohio was high. However, it sold mostly east of Indiana. Illinois Steel at this time marketed 95 per cent or more of its product west of this line, according to a later estimate of E.H. Gary. He also reckoned that it could not compete with Carnegie more than 100 miles east of its mills, if as far as that. Some Carnegie rails were sold in Chicago for \$18 a ton, below the price which Illinois Steel could meet if proper accounting practices were followed, while Carnegie claimed that it made a profit at \$16 a ton. Gary reckoned that if these conditions had continued Illinois would have been driven out of business, and recalled that only very narrowly did it escape receivership, the papers indeed having been drawn up.

The response to Carnegie's incursion into the rail market of Chicago was the formation, with the financial backing of J.P. Morgan, of the Federal Steel Company in 1898 (Warren 1972, p. 106).

Federal Steel was one of the allied holding companies of the Morgan group which in addition to Federal included American Bridge Company and National Tube Company. Federal Steel was a merger of six companies, the most important of which was the Illinois Steel Company (Hacker 1968, p. 396). Elbert Gary viewed the merger as necessary in order to improve the competitive position of Illinois Steel in relation to Carnegie since it would allow much more integrated operation by combining basic steel production with control over sources of raw materials. The formation of Federal Steel and its enhanced performance as an outcome of integrated operation led to something of a "stalemate" in the west. Although Federal Steel did not outsell Carnegie Company, it did lead to an agreement where, "Federal should have half the rail orders they [the two companies] were jointly able to secure." The more equal competitive footing of Federal, by

virtue of its more integrated operation, led to the establishment of a temporary truce between the two steel trusts.

Federal Steel was similar to Carnegie Steel since both were concerned with the production of basic steel goods for sale to producers of finished products. Unlike Carnegie Company which had production concentrated in Pittsburgh, Federal Steel's facilities were more geographically dispersed. Illinois Steel had operations in Chicago, Milwaukee, and Joliet. Lorain Steel's plant was located at Lorain, Ohio. Johnson Company's plant was at Johnstown, Pennsylvania. Besides these producers of basic and semi-finished products, Federal held iron ore properties, railroads, and steamship and barge lines (Hogan 1971, pp. 265-267; and Cotter 1916, pp. 21-22). So, the company was, like Carnegie Company, integrated vertically from raw material acquisition, processing, and transportation to basic steel production. The major difference between Carnegie Company and the Morgan Group of steel concerns was that Morgan began to organize vertically beyond basic steel, by establishing the American Bridge Company and National Tube Company. While Carnegie's organization relied on supplying steel fabricators with basic and semi-finished steel, these holding companies of the Morgan Group were directly involved in finished steel production and gave Morgan a more diversified operation.

Even though this was the case, locational difficulties prevented American Bridge and National Tube, for the time being, from direct integration into the same company, and while these three companies were affiliated through Morgan banking connections, they remained nominally separate holding companies. Federal Steel was located more westerly and its plants were somewhat geographically scattered,

making it difficult for the basic steel producer to supply its other companies. For example, the plants of American Bridge Company were located mostly in the east leaving it dependent on eastern producers, foremost among which was the Carnegie Steel Company. The same was true for National Tube Company, where the location of its mills made it difficult for the company to receive its supply from Federal Steel.

In this case, though, the response of the company was to begin to bring National Tube into production of its own "skelp" or semi-finished steel used in tube making. From the beginning, National Tube had capacity at many of its facilities for full, vertically integrated production, from ore processing to finished products.

The Morgan syndicate built National Tube Company around the National Tube Works Company which it merged with twelve of the nation's other steel tube concerns. National Tube Works Company was itself established by Flagler Brothers Company of Boston, founded in 1869 for production of boiler tube. As the demand for products to supply the oil industry increased, the company decided in 1872 to construct a new plant more centrally located in relation to iron ore, coal, and oil districts. The National Tube Works Company was then located at McKeesport, Pennsylvania. With the establishment of National Tube Works, "the Boston plant continued to operate on a partial basis, but as more sections of the new plant were opened equivalent facilities at Boston were closed" (Hogan 1971, p. 275). National Tube Works of the National Tube Company was, therefore, originally created through the "systematic disinvestment"--to use Bluestone and

Harrison's (1982, p. 6) terminology--and eventual shutdown of the works of Flagler Brothers.

National Tube was one of the largest tube concerns in the entire world, controlling 75 percent of the nation's welded tube capacity. Its organization of almost half of the nation's previously competing tube concerns,¹⁷ along with its integrated operations, denied Carnegie of an important market in supplying this area of finished steel production (Wendt and Kogan 1948, p. 185; and Hogan 1971, pp. 272-279) even though most of National Tube's facilities, including the National Tube Works, were located in the Pittsburgh district (Cotter 1916, p. 24). So, while Carnegie continued to have access to Chicago, Federal Steel, like Illinois Steel, continued to face problems supplying the eastern market and even many of its related steel fabrication concerns like those of the American Bridge Company. However, the Morgan Group was able to some extent limit Carnegie Company's free rein in Pittsburgh by gaining control over a network of steel tube factories in that area, through National Tube Company, which could provide their own

¹⁷ Most of these companies in 1889 were supplying Standard Oil, which was the largest single purchaser of pipe and tube products. With the formation of National Tube Company, Morgan controlled most of domestic production and a large share of the foreign market. Wendt and Kogan (1948, p. 185) put National Tube's command over production of "the country's iron piping and tubing" at 85 percent. In any case, Hogan (1971 p. 279) states,

The new company...supplied pipe for the oil fields of Russia, Bulgaria, Java, and Canada; irrigation pipe for Australia and South Africa; and hydraulic equipment for mines and industrial works throughout the world.

We can conclude that the company's control over tube production was indeed significant. Whether it was seventy-five or eighty-five percent is really not crucial.

input of basic steel. At least with regard to the specific example of National Tube Works, the creation of a vertically integrated organization was established through a process synonymous with deindustrialization. This was also true, as will be seen in other, larger contexts illustrated in the late nineteenth and early twentieth century histories of the Moore Group of steel companies, American Steel and Wire Company, and Shelby Seamless Steel Tube Company.

Abandoned Plants, Dismantled Facilities, and Capital Flight in International and Domestic Competition

What was true of Morgan's National Tube Company was also indicative of general developmental trends in the American steel industry of the late nineteenth and early twentieth centuries. Specifically, organization of production vertically, especially in the area of steel fabrication, became a way for companies to loosen dependence on other steel producers. Also, the building of horizontal organization, through acquisition and at times shutdown of competing plants, established command of firms over specific areas of production. Not the least exemplary of these trends was the history of the third largest of the nineteenth century corporate actors in the steel industry, namely, the combined concerns of the Moore Group of steel companies.

The Moore steel concerns included, similar to the Morgan Group, nominally independent holding companies: American Tin Plate Company, American Steel Hoop Company, American Sheet Steel Company, and National Steel Company. All of these were incorporated between 1898 and 1899, and all incorporated previously competing firms in their respective areas of production in order to "limit bitter

and destructive competition" (Hogan 1971, p. 292) and unstable prices connected with such volatile competitive conditions. Unlike Morgan's Federal, National Steel Company, a producer of basic steel, was the last of the Moore concerns to be established, and Tin Plate, Steel Hoop, and Sheet Steel companies provided National with exclusive markets bringing basic steel production together with production of finished goods. National Steel was established for the purpose of releasing all of the Moore companies from dependence on both Carnegie and Federal for inputs of semi-finished steel (Cotter 1916, p. 23; Knox 1944, p. 25; Wendt and Kogan 1948, p. 185; and Hogan 1971, pp. 287-89 and 292).

National Steel, in comparison to Carnegie Company and Federal Steel, had a fairly geographically centralized position. Its 18 blast furnaces, six steel works, and rolling mills were located primarily in Ohio (Columbus, Youngstown, Bellaire, and Bridgeport) and Pennsylvania, west of Pittsburgh (Sharon and New Castle). While not as geographically concentrated as Carnegie Steel, National did not face the locational difficulties of Federal Steel. In fact, the company became less geographically dispersed when its Zanesville, Ohio, blast furnace closed in 1900 and as its Columbus Works of Uniontown, Pennsylvania, was gradually dismantled from 1899 to 1901 and parts of the plant were shipped to and used in other National Steel factories at other locations (Hogan 1971, pp. 287-88). This took place in a manner similar to that of National Tube Works. Also, like Carnegie and Federal, National Steel was a well integrated basic steel producer which had among its holdings complete and partial interests in railroads, transportation

companies, ore docks, iron and coal mining concerns, and coke companies (Cotter 1916, p. 23; and Hogan 1971, pp. 288-289).

The organization of National Steel Company gave each of the other Moore companies, all of which made finished steel products, a secure source of semi-finished steel free of outside control over its inputs. However, each of the Moore companies shared similarities with Morgan's National Tube Company insofar as each independently had some control over all aspects of their respective areas of production. For example, typical of the Moore Group, American Steel Hoop Company was horizontally well integrated since this holding company brought together nine previously competing firms and operated a total of 15 plants. In addition, Steel Hoop established vertical control over railroads, ore and limestone properties, and a dock company. It also owned shares of five southern "ginneries" which were chief consumers of its cotton ties (Cotter 1916, p. 23; and Hogan 1971, pp. 296-299).

Another holding company within the Moore Group, American Sheet Steel, brought together 30 companies and operated 164 sheet mills located primarily in Ohio and Pennsylvania within reach of National Steel. In addition, American Sheet Steel operated a handful of basic steel making facilities and twenty coal mining properties. It also held all of the outstanding stock issue of McKeesport Terminal Railroad Company, Versailles Fuel Gas Company (27 gas wells), and Apollo Gas Company (110 gas wells). It also owned part of the stock of Manufacturers' Gas and Oil Company (Indiana well sites and gas and oil fields) in partnership with Republic Iron and Steel Company and Consumer's Paper Company (Cotter 1916, pp. 23-24; and Hogan 1971, pp. 292-296). Sheet Steel commanded 70 percent of the nation's sheet

steel capacity by 1900, and, like these other trusts, came to dominate its respective area of production within the national arena (Hogan 1971, pp. 295-296 and passim; Knox 1944, p. 22; Boore 1951, pp. 60-61; and Wendt and Kogan 1948, p. 149).

But, the most important of the Moore Group of companies was American Tin Plate, by virtue of its size as well as the developmental processes illustrative of its growth. The rise of the American tin plate industry and that of American Tin Plate Company in particular raises issues concerning the international and domestic aspects of factory closures. Current sociological treatments of factory closures which discuss such events in terms of the deindustrialization process, especially concerning the United States, emphasize the dismantling of industry as capital leaves the country for foreign shores. In the 1890s and in the example of the American tin plate industry, we see how industrial growth and monopolization in the United States was accompanied by a parallel decline in tin plate production in Great Britain and the flight of capital from Wales to this nation. The deindustrialization of Wales, with respect to its tin plate industry, was a precondition for the industrialization of the United States, with respect to its tin plate industry. Yet, the formation of the American industry was itself accompanied by the closure of American mills. This illustrates the proposition that factory closures are part of the cycle of deindustrialization and of industrialization as well.

Tin plate production in America had been taking place since the end of the 1850s. However, producers were unable to meet with much success since tin plate production was a much costlier enterprise than it was in Wales. The industrialization of England prior to

1875 produced a vast empire and an advanced technology. At the heart of British industrial capitalism was Wales, along with the other regions of the "Celtic fringe." Wales was known as a coal, iron, and, particularly, as a tin plate producing region after its progressive conversion to an "industrial enclave" of the British Empire (Khleif 1975, pp. 15 and 23; Hechter 1975, pp. 143-150; and cf. Pounds 1959, p. 82 and Khleif 1980). Until about 1890, most tin plate was therefore imported from Welsh factories which needed the United States market for about 70 percent of its total production (Knox 1944, p. 10; and Carr and Taplin 1962, p. 121). Prior to 1890, there were two "waves" of American tin plate production. In 1872, tin plate was first produced in the United States in commercial quantities "in anticipation of a tariff initiated in 1875" (Hogan 1971, p. 348).

By 1876, success of Welsh producers in lowering the price of tin plate forced American tin plate factories to close. American production resumed only after Welsh prices rose in the 1880s, but American factories were shut down shortly thereafter when Welsh prices fell once again. The advantage of Welsh industry rested not only on technical economy of British industry established in the mid-1800s but also on the low price at which labor could be procured owing to its colonial relationship with Great Britain (cf. Hechter 1975). With Welsh access to the American market, American producers, in competition with cheaper imports, were subject to periodic crises and closure of factories. Such closures of American mills can be accounted for with reference to the same dynamics which led to the closure of Chicago area mills in the face of "foreign competition" and cheaper "foreign imports" from Carnegie's Pittsburgh, discussed above. In this

way, international capitalist competition is another form of inter-regional capitalist competition but one which takes place across national boundaries, i.e., its extra-state expression (cf. Smith 1981, p. 229). Relevant to this process of periodic plant closure, Mandel (1972, p. 121) explained that the dynamics of capitalist competition lead to a "self-reproducing increase in capital being laid idle" as the struggle for control over markets lead to their relative contraction. Also, Davis (1933, p. 115) observed that this process implies the necessity of "periodic shut-downs during which a large part of accumulated capital is wasted and rendered valueless."

One important lesson of this period in the history of American tin plate manufacture is that "protectionism" means among other things not merely protection from inexpensive foreign goods, but, more fundamentally, protection of a faction of a domestic capitalist class from that of a foreign capitalist class which is in a position to more easily exploit its labor. Again, referring to the Carnegie example, relations between capital and labor forces enters into the cycle of capitalist competition. In 1890, the year the McKinley Tariff went into effect, this statement appeared in an editorial of the Bulletin of the American Iron and Steel Association as part of the campaign for the tariff. It is quoted in Hogan's (1971, p. 349) account.

...It is against the cheap hand labor of Wales, therefore, as well as against the cheap labor employed in producing iron and steel sheets, that American capital and labor need to be protected if we would build up an American tinplate industry. How cheaply hand labor in Wales may be obtained can easily be inferred from the frank admission by the London Iron and Steel Trades Journal for April 12, 1880. That paper then said: "The great obstacle to tinplate making on a large scale in the States is the entire absence of CHEAP FEMALE LABOR, so necessary in the industry, and so abundant in Wales, but if the enormous duty of

12s. a box [12s. per hundred pounds] is adopted possibly the labor difficulty may be got over."

In this statement, American producers recognized the ability of foreign capitalists to more effectively exploit labor, and this, they further recognized, placed them at a competitive disadvantage. The implication here is that a tariff could counteract the lack of American producers of access to cheap, i.e., female and Welsh, labor. The state stepped in, lending political support to the expansion of capital--as it had in the post-Civil War establishment of the Morrill Tariff which aided producers of basic steel.

The establishment of the McKinley Tariff in 1890 brought American manufacturers back into tin plate production and created severe competition in the domestic market since mills that had been idled before the institution of the tariff were brought back into production and new mills were being built.¹⁸ With passage of the McKinley Tariff in 1890,¹⁹

¹⁸ Knox (1944, p. 13) states:

It was with pride and satisfaction that the community of Demmler, Pa., saw its mill, the United States Iron & Tin Plate Manufacturing Company, industriously start producing tin plate in 1890, undoubtedly with some of the equipment which it had been forced to shut down 13 years before.

¹⁹ The protection of the McKinley Tariff of 1890 was an important factor in the development of the tin plate industry in the United States. It did little, however, to help the basic steel industry since it was largely unnecessary. American factories, especially Carnegie's, outproduced the best British mills and a level of technical and labor economy had been achieved which made it impossible for European, especially British, producers to compete with cheap domestic rails. By this time, all the "protection" American steel makers needed was the freight cost of importing steel from Europe. Regarding the relationship between American and European steel makers, "Passage of the McKinley Tariff Act of 1890 was like shooting a corpse" (Wolff 1965, pp. 60-61). On this issue see also Pierce (1907, pp. 33-34).

Domestic tinplate manufacture grew prolifically and immediately penetrated the British market here. British imports dropped from 327,882 net tons in 1891 to 300,688 net tons in 1892, and each successive year saw a further decline. In 1896, for the first time, United States production (179,605 net tons) was greater than British imports (133,471 net tons). By 1898, the British had been effectively severed from their American market (Hogan 1971, p. 351).²⁰

When the McKinley Tariff went into effect in 1891, 20 plants began producing tin plate and ten more tin plate factories were under construction (Knox 1944, p. 12). The world center of tin plate production was shifting from Wales to the United States.

For the first few years of the 1890s, American production of tin plate was carried out using Welsh techniques and, more importantly, tin plate mills dismantled and imported from Wales. Also, owing to the undiversified nature of the Welsh colonial economy and its vulnerability to changes in markets, a great many Welsh laborers, with little other choice, followed tin plate capital and emigrated to the United States in search of work (Hogan 1971, p. 351, and cf. Hechter 1972, p. 169; Khléif 1975, p. 23; and Cooke and Rees 1981, p. 285, on the undiversified nature of the Welsh economy).²¹ Howard A. Knox's (1944) book, Development of the American Tin Plate Industry, includes as its frontispiece an illustration showing the trademark of the American Tin Plate Company of Elwood, Indiana, 1891--later incor-

²⁰ See also Warren (1972, p. 215) on the McKinley Tariff and the rise of domestic tin plate production.

²¹ Prior to 1850, the first wave of Welsh immigration came with agricultural dislocation which accompanied the industrialization of Wales (Dinnerstein and Reimers 1982, p. 16). In the post-1890 period, the immigration of Welsh people accompanied industrial dislocation created by the loss of a significant portion of the Welsh tin plate industry.

porated into Moore's American Tin Plate Company. In a graphic depiction of capital flight, the trademark shows the British lion as helpless prey gripped in the talons of the American eagle. Knox's caption reads: "The American eagle carrying the British lion symbolizes the replacement of Welsh tin plate by the American product."²²

Carr and Taplin's (1962, p. 117) account on conditions in British tin plate manufacture for this period states:

In 1890 there were 519 mills operating, on an average more efficient and with higher capacity [in comparison to those of the previous decade]. Many new mills had been built during the decade. In the past--notably in 1880-81--capacity had temporarily outrun demand, but the level of trade had soon caught up. This time it was different; the American market, to which everyone had looked for the next revival when times were bad, was fading away apparently for good....By mid-1896 the number of tinplate mills at work in the United Kingdom had fallen to 308 and was still falling.

The tariff barrier and the resultant revitalization of American tin plate production led to a net loss of least 211 mills in Wales during this six-year period. The British were being separated from their American market by American capital. The rise of tin plate production in the United States brought with it dismantled Welsh mills and their export to and relocation in the United States in a manner consistent with the definition of the process of deindustrialization (cf. Harrison and Bluestone 1982, p. 300). As the American market faded away, so did much of the Welsh tin plate industry.

²² Development of the American Tin Plate Industry was published by United States Steel Corporation. Knox was "Assistant to Manager of Sales" for the tin plate division of Carnegie-Illinois Steel Corporation at the time. The American Tin Plate Company of Elwood, Indiana, was the company around which the American Tin Plate Company of New Jersey was formed.

The severing of the British from their American market was further boosted by the establishment of the Dingley Tariff in 1897 (Hogan 1971, p. 292; and Pierce 1907, p. 35). The protection of the American market brought severe competition to the domestic tin plate industry which was then dominated by many small firms originally established to take advantage of the market freed from British competition.

In 1898, W.H. Moore, a promoter of mergers, sought to form a large consolidation of the nation's tin plate producers (Hacker 1968, p. 425).²³ In 1898, the American Tin Plate Company was incorporated under the laws of the state of New Jersey as a holding company for 38 subsidiary companies comprising 39 plants operating a total of 279 tin plate producing mills.²⁴ Such command of capital gave Moore's American Tin Plate Company monopoly status by bringing nearly all manufacturers of tin plate in the United States under one organizational structure. Hogan (1971, p. 290) comments that American Tin Plate Company "achieved the main objective for which it was formed, to prevent harmful price reductions by restricting severe competition."

One way the company restricted competition was, upon its consolidation, to shut down and dismantle several of the plants it had

²³ Moore and his brother James had already formed the National Biscuit Company and the Diamond Match Company (Hacker 1968, p. 425; Wendt and Kogan 1948, p. 185; Hogan 1971, p. 289). Moore's desire to form a tin plate corporation may be less than coincidental when viewed against the fact that at the time, National Biscuit Company's products were packaged in containers made of tin plate.

²⁴ Member companies of American Tin Plate were distributed in the following manner: Pennsylvania (18 companies), Ohio (9 companies), Indiana (5 companies), Maryland (3 companies), West Virginia, Illinois, and New York (1 each).

just acquired, shipping usable equipment to other American Tin Plate locations. The decline of British dominance over the American tin plate market brought with it the dismantling and dislocation of mills in Wales, and, the domination of the American Tin Plate Company over the domestic market brought with it dismantling and closure of plants in the United States. This illustrates the point that factory closure is an aspect of both the deterioration of the market position of firms and of a firm's establishing controlling position with respect to markets.

American Tinplate Company was in this respect similar to other trusts in steel formed in the closing years of the nineteenth century. Like American Steel Hoop and American Sheet Steel Companies of the Moore Group, American Steel and Wire, and Shelby Seamless Steel Tube, Tin Plate Company represented a horizontal merger of previously competing firms concerned largely with production of a single product and was formed in order to avoid price fluctuations associated with competition between many capitals. Like these other companies, factory closures were important in the establishment of oligopolistic control of production. American Tin Plate, for example, was similar to American Sheet Steel Company, also of the Moore Group. American Sheet Steel, directly upon its consolidation in 1899, dismantled four of its works in Pennsylvania and one in Ohio.²⁵ The closure of factories is seen to play a vital role in the establishment of control over production horizontally and vertically. This is something which is also appar-

²⁵ These included its Laufman Works, Paulton; Shousetown Works, Shousetown; Steel Plant Works, Leechburg; and Butler Junction Works, Westmoreland County, all in Pennsylvania. In Ohio, Sheet Steel dismantled its Coshocton Works, Coshocton (Hogan 1971, pp. 295-296).

ent in the histories of Shelby Seamless Steel Tube Company, which bought factories of competitors in order to shut them down, and American Steel and Wire Company where closed plants accompanied investments in other aspects of steel production.

In explaining the reason for the closure of American Tin Plate factories, Hogan (1971, p. 292), accepting Knox's assessment, argues that they were part of an overall plan of consolidation to "insure efficient functioning" by freeing the company of "inefficient" and "poorly located" plants in order to bring operations into "closer coordination." Knox (1944, p. 24) also argues that the plants were dismantled as constituent companies were brought into closer, more centralized relation with company offices in Chicago and New York.

This raises several important issues concerning the notion of efficiency and its relation to factory closures. In reality, the issue of what constitutes efficiency of technique, organization, and location enters the discussion as an historical question since the level of efficiency, the degree of coordination, etc., are historically relative. For example, poor location is not an inherent quality of a factory. In fact, Knox's assessment and Hogan's acceptance of it implies that the newly acquired factories of American Tin Plate Company were not poorly located until they were brought within the organizational framework of Moore's tin plate monopoly, and that the continued operation of the plants posed difficulties of coordination in relation to the location of corporate offices.

This raises yet another issue. If the incorporation of the factories would leave them in a position where it would be difficult to coordinate the activities of the plants in relation to the location of

corporate offices, why were they purchased in the first place? The company, upon its formation, pursued a conscious policy of restricting competition in the tin plate trade. Part of this policy was an attempt to gain control over the supply of machinery for producing tin plate in order to limit independent tin plate mills (Hogan 1971, p. 291).

While this aspect of the company's policy met with little direct success, control over independent companies could be achieved through direct purchase of factories. However, if they could not be run "efficiently," if their purchase imposed a poor location upon them, they were shut down since to leave them unpurchased and therefore in continued operation would leave independent competitors in the field. It is not enough simply to explain the closure of factories by stating that they are no longer efficient, since efficiency must itself be explained in relation to specific historical circumstances under which factors of production become efficient or inefficient, poorly located, or well coordinated. The closure of these factories of the American Tin Plate Company, therefore, had less to do with the establishment of efficient functioning and more to do with the process through which firms extend control over production and markets. The histories of Shelby Seamless Steel Tube Company and American Steel and Wire Company also demonstrate the essential role played by factory closures in the process of capitalist competition and the extension of control over all aspects of production.

Shelby and American Steel and Wire Companies: Factory Closures in Horizontal and Vertical Competition in the Domestic Arena

The history of Shelby Seamless Steel Tube Company offers an example of the role played by factory closures in the process of monopoly formation and their importance within strategies of control pursued by firms. Especially during the years 1897 until 1901, Shelby rose to near monopoly stature in seamless tube production. Shut-downs and dismantling of works accompanied the expansion of the company as it eliminated competitors and concentrated production in and around Shelby and Toledo, Ohio.

The Shelby Steel Tube Company, located in Shelby, Ohio, was incorporated in 1890 under the laws of that state, and the company represented the first successful venture in the commercial production of seamless steel tubes in the United States (Boore 1951, p. 35; and Jones 1926, p. 42).²⁶ The demand for seamless steel tubes was sparked in the late nineteenth and through the first decades of the twentieth century by several developments: (1) as stated above, a growing oil industry which required seamless tubes for drilling equipment; (2) production of spindles and shuttles for the textile industry which had been growing domestically since the end of the Civil War; (3) expanding military production leading up to and following the Spanish American War; (4) growing production of stationary boilers along with marine boilers as part of the naval expansion program begun in 1897; (5) use of steel tube in production of automotive

²⁶ The company was originally known as the Lozier-Yost Seamless Tubes Works after its incorporation in December of 1890 when its named was changed in January 1891 to Shelby Steel Tube Company (Boore 1951, p. 35).

frames and engine parts; and (6) increased requirements of steel tubing in the production of locomotives (Boore 1951, pp. 75-84; and Warren 1972, p. 174).²⁷

Besides all of these areas of demand, the seamless steel tube industry in the United States took off because of the enormous demand for bicycles. The "bicycle craze" in the United States began around 1895 and was of great importance to the industry because steel tubing for bicycles was produced under special patents which came to be controlled by bicycle manufacturers (Boore 1951, p. 44; and Hogan 1971, p. 282). Shelby's first major acquisition was the Shelby Cycle Manufacturing Company in 1893. By 1896, the Shelby Company led the industry nationally in output.²⁸

On 28 October 1897, Shelby Seamless Steel Tube Company was reorganized under Pennsylvania law as a holding company. The new company, which merged six former competitors, had a combined

²⁷ Seamless steel tubes were used in construction of naval vessels in the British and French navies since 1895 and in the American navy since about 1898, replacing copper and brass as tubing materials. Railroads were increasing their load capacities and building larger and more powerful locomotives. They adopted the use of superheated steam engines requiring vast lengths of steel boiler tubes. Superheated steam power was utilized in newly constructed locomotives, and railroads also undertook conversion of old locomotives (Boore 1951, pp. 75-84).

²⁸ Of the seven largest producers of seamless steel tube in the nation, Shelby Seamless Steel Tube Company had an annual output of 18,000,000 feet. The Mansfield Machine Company produced 15,000,000 feet per year, followed by the Ellwood Weldless Tube Company and the Pope Tube Company of Hartford, Connecticut, maker of the Columbia Bicycle, each with outputs of 12,000,000 feet per year. New Castle Tube Company and Brewer Seamless Tube Company each made 10,000,000 feet per year and the Ellwood Ivins Tube Company had an annual output of 5,000,000 feet (Hogan 1971, p. 282).

annual output at the time of 57 million feet, which gave it a great deal of control over the nation's seamless steel tube making capacity. Eventually, Shelby would stand in position to build a monopoly with control of 90 percent of the nation's seamless steel tube capacity, at least before the formation of Morgan's National Tube Company which was beginning to make incursions into seamless tube production and later, Shelby's acquisition by U.S. Steel (Ripley 1916, p. 174-175; Jones 1926, p. 195; and Hogan 1971, pp. 282-283).²⁹

Besides the original plant at Shelby, Ohio, designated "Factory A," the merger involved: Ellwood Weldless Tube Company, Ellwood City, Pennsylvania, or "Factory B"; Greenville Tube Company, Greenville, Pennsylvania, "Factory C"; American Weldless Steel Tube Company, Toledo, Ohio, "Factory D"; Brewer Seamless Tube Company, Toledo, Ohio, "Factory F"; and Auburn Nut and Bolt Company, Auburn, Pennsylvania, "Factory O" (Boore 1951, p. 60). From the time of this merger until its acquisition by United States Steel Corporation in 1901, Shelby Company pursued a broad program of expansion, centralization of production, and elimination of competitors (Hogan 1971, p. 283). This policy included the acquisition of the plants of competitors and their subsequent shutdown, dismantling, and transfer

²⁹ Boore's (1951, pp. 60-61) account clarifies the narrative.

Records seem to indicate the existence at the time of twelve additional operating mills...whose combined capacity at the time was certainly equal to or in excess of 50 million feet. Indications are, however, that in many instances, negotiations looking towards their acquisition by Shelby were well under way and the 90 percent figure may have anticipated that eventuality.

of facilities to Shelby's other plants--especially to those in and around Shelby and Toledo, Ohio.

About one year after the merger, Shelby expanded by purchasing Mansfield Manufacturing Company of Mansfield, Ohio; Hercules Seamless Tube Company of Garwood, New Jersey; and United States Standard Drawn Steel Company of Cleveland, Ohio, including its Cuyahoga Falls mill. Although receiving their designations as Shelby factories H, I, and K, respectively, all of these newly purchased mills were immediately closed (Boore 1951, p. 64; and Hogan 1971, p. 283). Boore's (1951, p. 62) account demonstrates Shelby's approach to centralization.

On July 21, announcement was made that the Mansfield works was shut down and all the tube making equipment as well as the in-process and finished stock moved to the plant at Shelby, Ohio....On August 2, Shelby announced the dismantling of the Brewer plant [Factory F] at Toledo, O., and the moving of its 10 benches to the American Weldless plant [Factory D] in the same city. These together with 21 more shipped in from other dismantled plants gave the American Weldless a total of 43 cold draw benches.

Factory K at Cuyahoga Falls, Ohio, was dismantled and its facilities were moved to the Shelby plant and to Factory C at Greenville, Pennsylvania, following the procurement by Shelby of a large order from the U.S. Navy for projectiles. Factory I was dismantled and its equipment shipped to other plants (Boore 1951, pp. 65 and 128-129).

In May of 1899, Pope Tube Company of Hartford, Connecticut, and Albany Manufacturing Company of Albany, Indiana, were acquired by Shelby as Factories M and N, increasing the annual capacity of the concern to 100,000,000 feet (Boore 1951, pp. 65-66). In August of that year, Shelby acquired the facilities of the U.S. Projectile Company

of Brooklyn, New York. This company, with an annual capacity of 6,000,000 feet, produced a full range of seamless tubing and was a major supplier of steel tubes used in making dynamite guns used in Cuba during the Spanish-American War. Although U.S. Projectile received the designation of Factory E, its facilities were, upon their purchase, immediately dismantled and shipped to other Shelby plants. The dismantling of U.S. Projectile coincided with Shelby's dismantling in July 1899 of a large storage and shipping structure at Factory B in Ellwood City, Ohio, and its relocation at Factory D in Toledo (Boore 1951, pp. 67 and 124-125).³⁰

In 1900, Shelby was reorganized under the laws of New Jersey, but not before it had attained a near monopoly in seamless steel tube production with the purchase of the McCool Tube Company of Beaver Falls, Pennsylvania, which became Factory L. This was the last acquisition Shelby would make before its merger into U.S. Steel. In August of 1900, Factory L burned down and was never rebuilt (Boore 1951, pp. 68-69; and Hogan, 1971, p. 283).

In all, before Shelby Steel Tube Company became part of United States Steel in June of 1901, it had dismantled or permanently shut down these plants:

- Mansfield Machine Company, Mansfield, Ohio (Factory H);
- Albany Manufacturing Company, Albany Works, Albany, Indiana (Factory N);

³⁰ Factory D had already been the recipient of the "usable pieces" of the Brewer Works of the Brewer Seamless Tubing Company (Factory F) previously dismantled by Shelby which had acquired it in 1897 (Boore 1951, p. 125).

- U.S. Projectile Company, Brooklyn Works, Brooklyn, New York (Factory E);
- U.S. Standard Drawn Steel Company, Cayahoga Works, Cayahoga Falls, Ohio (Factory K);
- Hercules Seamless Drawn Tube Company, Garwood Works, Garwood, New Jersey (Factory I);
- Brewer Seamless Tubing Company, Brewer Works, Toledo, Ohio (Factory F);
- Pope Tube Company, Hartford Works, Hartford, Connecticut (Factory M); and,
- New Castle Tube Company, New Castle Works, New Castle, Pennsylvania (Factory G) (cf. Hogan 1971, p. 284).

Following these shutdowns and relocations of various facilities, Shelby undertook an improvements program just prior to its acquisition by U.S. Steel. Plans were made for the addition of a new piercer at Factory A in Shelby. This piercer was to complement facilities which had been removed from the Auburn factory and relocated there. Most importantly, plans were made for the construction of a new bar mill at the Greenville plant. The immediate purpose of such actions was, it seems, to make Shelby attractive to the Steel Corporation as an object of merger. Boore (1951, p. 72) comments,

All of these improvements were carried through to completion but with the exception of the Greenville bar mill were of questionable merit from the standpoint of cost reduction or increase of capacity. A contemporary suggests that they were for the most part window dressing to make the company attractive to the Steel Corporation. In support of this point of view the new hot mill at Shelby, Ohio, produced only a few thousand tons of tubes in its entire existence.

Hogan (1971, p. 284), with reference to this aspect of Boore's narrative, agrees that these actions were indeed "window dressing"--an aspect of Shelby's "desire...to enter the United States Steel organization."

The history of the Shelby Seamless Steel Tube Company supports two points. First, the pattern of its factory closures resembles a similar pattern described in current analyses of deindustrialization. In this way, the closure of Shelby plants from 1897 to 1901, in the process of eliminating competitors, was part of a "method for shifting capital [involving] physically relocating... equipment from one facility to another" (Bluestone and Harrison 1982, p. 7), and shifting investment in the form of an improvements program.

Secondly, the example of the Mansfield Works shutdown particularly calls into question explanations of the factory closure as representing the purging of obsolete facilities and methods from industries and economies through a process of "creative destruction" (cf. McKenzie, 1984, p. 85; and Thurow 1980, p. 77). Boore (1951, p. 62) points out that at the time of its closure,

One of the men who assisted in the inspection of the tubing from this mill, as well as from others which were taken into the combination, stated that the tubing from the Mansfield mill was the most accurately drawn of any he had inspected.

Here, the case of the Mansfield Works, Factory H, among others in Shelby's history as an independent corporation, indicates the problematic nature of such corporate actions, i.e., they cannot simply be explained by examining them through the lenses of "efficiency" and "obsolescence." Such terms are treated as, but in reality are not, "natural" categories. Rather, efficiency and obsolescence are, in a very

important sense, socially created conditions imposed upon commodities and processes produced within a social order wherein such things as "usefulness" and "need" are of little or no consequence in economic life (Brown 1986, p. 46). Indeed, in the Shelby case, shutdowns, dismantled factories, and relocation of facilities took place with regard not to technical considerations of tube production but with regard rather to the extension of control over production, the elimination of competitors, and building the bargaining position of the firm by making the company attractive as an object of merger through "window dressing."

Making the company attractive for merger was important because while enjoying a great deal of horizontal control in seamless steel tube production, Shelby lacked control over any basic steel producing capacity and depended on other producers for its input of raw materials. U.S. Steel Corporation controlled the vast majority of basic steel production, and as a fully integrated firm, held National Tube Company as a tube-making subsidiary. Shelby could at least enter the corporation on its own terms. By the close of 1901, U.S. Steel held both National Tube and Shelby Steel Tube as wholly owned subsidiary companies. Eventually, the plants of the Shelby Company would come to be operated by National Tube Company.

The cases of the American Tin Plate Company and, especially, Shelby Seamless Steel Tube Company demonstrate a manner in which factory closures and relocations are part of a process wherein command over capital is established. Factory closures represent direct elimination of competitors in the process of monopoly building and with it, extension of administrative control over production as more

and more of the nation's capacity to produce comes under the direction of fewer and fewer firms. In this process, considerations of such things as efficiency, however it is defined, and obsolescence, etc., are of secondary importance to considerations having to do with control. Such is also the case of the American Steel and Wire Company prior to its incorporation into United States Steel. However, whereas the Shelby case exemplifies the closure of plants in the process of building horizontal control over production, the case of the American Steel and Wire Company, already commanding most of the nation's wire and nail capacity, illustrates the role of closures in building vertical control over production. In this case, factories became like pawns in capitalist competition and the shutdown of its plants were not to eliminate horizontal competitors, but to release it from vertical dependence on basic steel producers.

American Steel and Wire had developed originally from a partnership between John W. Gates and Elbert Gary, who together had formed the Consolidated Steel and Wire Company in 1892. As Wendt and Kogan (1948, p. 146), Gates's biographers, put it, "keeping with the McKinley era of *laissez faire*," Gates and Gary sought to consolidate the wire industry still further in order to

Put an end to ruinous price cutting and take advantage of economies of scale to reduce high production costs which were being incurred by many of the companies in the wire industry at that time (Hogan 1971, p. 258).

Gates and Gary sought J.P. Morgan's financial backing, but Morgan was put off the idea when the United States entered war with Spain in 1898. Gates and Gary, deciding to go ahead with their plan for a wire and nail trust, formed the American Steel and Wire Company of Illinois

in March of 1898. This holding company was formed in order to take over, in addition to several other properties, those of Consolidated Steel and Wire Company. The new trust held 14 plants and controlled 75 percent of the nation's wire producing capacity (Wendt and Kogan 1948, p. 149; and Hogan 1971, p. 258).

It was here that the partnership between Gates and Gary ended. Gary and Morgan cooperated in the formation of Federal Steel. With the financial backing of J & S Seligman banking house, Gates, in January 1899, went on to form the American Steel and Wire Company of New Jersey which held 36 of the nation's largest wire producers and several smaller ones. Gates became chairman of the board of directors and appointed John Lambert president of the new combination which attained a "virtual monopoly" over the nation's wire, nail, and fence material business (Hogan 1971, pp. 260-261).³¹

From April of 1900 to the incorporation of United States Steel a year later, Gates engineered a strategy designed to expand control of American Steel and Wire in relation to other producers and release it from dependence on companies producing basic steel by building a more vertically integrated operation. This program involved the shutdown of plants--at one point, one-third of the constituent plants of American Steel and Wire were closed.

Early in 1900, John Gates announced to the steel industry that American Steel and Wire Company was in good financial condition and

³¹ According to Harvey O'Connor (1935, p. 39), when Gates was putting American Steel and Wire together, "He bought mills sight unseen for \$1,000,000 apiece." This along with his reputation as a stock market speculator and a penchant for gambling earned Gates the nickname of "Bet a Million!" (Wendt and Kogan 1948, p. 176).

commented with optimism on the state of the industry. However, on 16 April 1900, Gates, without warning, announced the shutdown of twelve of Steel and Wire Company's plants.³² In a complete turnaround from his statement made less than two months earlier, Gates told reporter Robert Armstrong of the Chicago Record, when asked to explain the closings,

It all amounts to this...that the steel and wire business is in bad shape. It has been getting worse constantly and the mills of every sort have been running on orders that they obtained six or more months ago. The demand today in our line, at least, and I think proportionately in the other departments of the steel trade is only about 30 per cent of the volume it should be. For instance, we have been making 5,000 and 6,000 tons of finished products in the justified expectation of selling about 6,000. We have, in fact, been selling only 2,000 or 3,000 tons. That illustrates the situation (Wendt and Kogan, 1948, p. 162).

From various quarters of the steel industry came statements from industry officials, Morgan and Gary among them, denying that there was any basis for Gates's pessimistic assessment of the industry. When pressed to explain how the industry could possibly have deteriorated so much in a month and a half, Lambert, asserting the "divine right" of capital, stated forthrightly that, "Our company is running this business without any need of explaining! We shut down and open our mills when we see fit!" (Wendt and Kogan 1948, pp. 162-163). This was followed by a statement from Lambert on 19 April that four of the

³² "Three of those shut were wire-nail plants in Joliet; in addition he also closed a wire-rod mill in Waukegan, another in Newcastle, Pennsylvania, a wire mill in Anderson, Indiana, the Ellwood plant in De Kalb, the Allegheny Furnace Company, another plant in Cleveland and three wire mills in Pittsburgh" (Wendt and Kogan 1948, p. 162).

closed plants would be reopen in a week (Wendt and Kogan 1971, p. 164).

The announcement that these plants of American Steel and Wire Company were to be closed triggered a panic on Wall Street which sent steel stock prices in general and those of Steel and Wire Company in particular plummeting. Two days before the announcement, Gates, through his confidential secretary O.A. Owen gave word to his Chicago brokers to sell a large block of his stock in American Steel and Wire Company. It was estimated that he sold 50,000 shares of common and 20,000 shares of preferred stock, and when the panic hit the stock market he merely began to buy the stock back at a much lower price (Wendt and Kogan 1948, pp. 164 and 174; and O'Connor 1935, p. 40).³³

Since we tend to maintain and romanticize an image of the reckless and adventurous entrepreneur, it is tempting to call Gates's behavior nothing more than a superior example of "stock jobbing." But there appears to be more to the story than that. Certainly, one would not want to deny the influence of a personal profit motive in the entire episode, for, after all, accumulation of personal wealth is the "name of the game" under capitalism. However, this affair of using plant shutdowns as a springboard for what amounted to stock manipulation might be best understood by examining the position of American Steel and Wire Company just prior to its absorption into the

³³ Shortly after the episode, Gates resigned his seat on the Board of Directors of American Steel and Wire but did not lose influence within the company. It is estimated that when all is said and done, Gates walked away from this affair with \$1,000,000 to \$1,620,000 (Wendt and Kogan 1948, pp. 174-175; and Hogan 1971, p. 262).

United States Steel Corporation. Gates's was not just a case of "grab the money and run" but his actions are also intelligible within the context of the dynamics of capitalist competition and their relationship to corporate control because it was at this time that Gates began a program designed to break the dependence of American Steel and Wire on the Carnegie Company. As Shelby Company had prepared for merger by "window dressing," American Steel and Wire Company was also consolidating its position with respect to other steel producers.

It was common knowledge in 1900 that a merger of huge proportions in the steel industry was in the making. Carnegie had already had several offers and had been naming prices.³⁴ In fact, Carnegie had already been involved in discussions concerning possible mergers with both the Moores and with Rockefeller (Wendt and Kogan 1948, p. 186; and Hacker 1968, p. 186). Since the Carnegie Company was setting the pace in the industry, other producers of both basic steel and finished goods were trying to improve their positions in relation to Carnegie.

American Steel and Wire Company sought to extend its vertical control by increasing its supplies of raw materials and acquiring facilities to fill its own needs for basic steel. Other firms such as National Tube and the Moore Companies were following suit. Between the time of the shutdown of these twelve plants and the incorporation of United States Steel, Gates announced that he was negotiating for

³⁴ According to Jennings (1926, p. 634), Carnegie first received from and considered an offer of \$250,000,000 made by an English syndicate for the properties of Carnegie Steel Company.

the purchase of additional coal mines in West Virginia and for additional steel plants in Milwaukee in order to lessen dependence of the company on Carnegie.³⁵ As part of this program, in the last year of its existence as an independent corporation, Gates engineered the purchase of four ships to transport iron ore from the Mesabi range on the Great Lakes (Wendt and Kogan 1948, p. 188; and Hogan 1971, p. 263).³⁶ At nearly the same time, American Steel and Wire Company permanently closed and dismantled its Duncansville Works in Pennsylvania, its Crown Point Works blast furnaces in New York, and its Findlay Works and Cincinnati Works, both in Ohio (Hogan 1971, pp. 264-265).

In relation to the Carnegie Steel Company and the central role that Gates and others in the steel industry knew it would play in an upcoming merger, American Steel and Wire Company was able to press a two-pronged attack in improving its position in relation to other steel producers. First, vertical integration lessened dependency on basic and semi-finished steel producers--in particular Carnegie Company which was most important among these. Hogan (1971, p. 263) concludes that increased vertical control accomplished by American Steel and Wire along with other producers of finished and

³⁵ American Steel and Wire had also shifted its orders from the Carnegie Company to Federal Steel (Wendt and Kogan 1948, p. 188).

³⁶ One of the ships was named the J.W. Gates. The other three were named for close associates of Gates: the James J. Hill for one of Morgan's railroad lieutenants through whom Gates usually dealt with Morgan, the I.L. Ellwood who stood with Gates through the plant closing fiasco and who resigned with him, and the William Edenborn who took Ellwood's position on the board of directors (Wendt and Kogan 1948, pp. 174 and 188).

basic steel "placed Carnegie on the defensive." Secondly, when American Steel and Wire shut down twelve of its plants on 16 April 1900, it not only created panic in the stock market but threatened to remove from the basic steel producers an important market supplying semi-finished goods for wire production. The shutdowns were considered important enough for representatives of Federal Steel, among whom was Elbert Gary, to attend the board meeting of American Steel and Wire because "they wanted...assurances that American Steel and Wire would not back out on its order for 50,000 tons of steel billets from Federal Steel" (Wendt and Kogan 1948, p. 165).³⁷ While American Steel and Wire eventually shifted its orders to Federal, the wire trust successfully dealt Carnegie out of the wire market. Furthermore, against the backdrop of the closed plants, Gates delivered the following statement to reporters at the conclusion of the board meeting (quoted in Wendt and Kogan 1948, p. 165):

The board of directors...discussed the general business situation and unanimously decided that until the overproduction of materials has been disposed of, the executive committee may make such reduction in prices as they may find necessary to accomplish this and resume operation of the idle plants.

While producers of finished steel goods were moving into basic steel production and limiting access to markets, Carnegie Company developed a program in response and threatened to counter such moves by itself moving into wire and tube making. Plans were announced by the Steel Company in 1900 and early 1901 to begin construction of a huge steel tube works in response to National Tube's

³⁷ A billet is a semi-finished steel product used in steel wire and steel tube production.

operation of blast furnaces at its newly formed subsidiary, Tube Steel Company at Benwood, West Virginia, in 1899 (Hacker 1968, p. 465). "Carnegie saw in this a loss of market for he supplied the National Tube Company with much of its raw steel" (Hogan 1971, p. 465). Despite Carnegie's wish "to co-operate in every way with...fellow manufacturers," it would be necessary to enter the new field in "self-defence" (Bridge 1903, pp. 360-361, quoting the Iron Trade Journal for 17 January, 1901). Also in response to Morgan, who was heavily interested in the Pennsylvania Railroad and who had control over about half the country's railroads, Carnegie Company proposed to build its own rail line, which would parallel Pennsylvania Railroad, to bring steel to the coast from Pittsburgh and, in basic steel, to invade the western territory of Federal's Illinois Steel Company (Cotter 1916, p. 14). Further, "To fight Gates, a huge wiremaking plant...would be constructed near Pittsburgh" (Wendt and Kogan 1948, p. 189; and Hacker 1968, p. 399). In 1900, then, Carnegie announced that the Steel Company would enter wiremaking. Threatened by a renewed and higher level of "destructive and ruinous competition," a destructive industrial war, with all capitals in steel poised and at the ready, the United States Steel Company was finally formed in 1901 (Wendt and Kogan 1948, pp. 189-192; Bridge 1903, pp. 358-362; and

Hogan 1971, pp. 263 and 465-468).³⁸ The companies, like Hobbesian men who establish the Commonwealth out of fear of dying violent deaths at the hands of their fellows, established the Corporation as a solution to the possibilities, and to avoid the dangers, of mutual annihilation.

Conclusions

The United States Steel Corporation, chartered in New Jersey as a holding company, brought together the properties of what were then the largest of both basic steel and fabricated steel producers including the Carnegie Company, the companies of the Morgan and Moore Groups of allied holding companies, American Steel and Wire Com-

³⁸ Wendt and Kogan (1948, pp. 189-190) comment further on this:

As he anticipated, Carnegie's enemies were thrown into turmoil by these announcements. Carnegie was in an excellent position to fight and win an industrial war...and he knew it. His railroad venture could wreck Morgan's growing rail empire, his tube company might smash Morgan's...National Tube. If Carnegie made wire from his tremendous steel resources, he could engage in an unconscionable price-cutting campaign, one that could ruin Gates.

In a related line of commentary Bridge (1903, p. 361) states:

In the conversion of the heathen, missionaries have found it useful to describe the condition of the damned before presenting a picture of the joys of the blessed. It was on some such principle that the threat of industrial war was thus made by the Carnegies before the blessings of co-operation and consolidation were set out before the vision of the alarmed financiers of the country.

Carnegie's proposal to build a tube works, railroad, and wiremaking plant were followed by "a bankers' dinner, at which were preached the joys of industrial peace" (Bridge 1903, p. 361).

pany, and Shelby Seamless Steel Tube Company.³⁹ In addition, it also incorporated Rockefeller's Lake Superior Consolidated Iron Mines. With the inclusion of Carnegie Steel Company, the financial backing of Morgan, and the incorporation of Rockefeller interests, the formation of United States Steel Corporation represented the unification around steel production of the interests of three of the United States's most powerful and influential capitalists.

As the first billion-dollar corporation, United States Steel was the largest single consolidation yet formed, and its control over natural resources and command over all aspects of steel production is indicated by Hacker (1968, p. 437), who states:

A royal domain was included in the assets of the corporation. These were made up of 78 blast furnaces and 150 steelworks and rolling mills; ore lands whose reserves at the time were calculated to be three-quarters of a billion tons of iron ore; 70,000 acres of coal lands as well as limestone deposits; almost half of the coke ovens of the United States (about 20,000 out of 47,000), which produced more than one-half of the country's coke; 112 steamships and a thousand miles of railroad. The annual productive capacity of the United States Steel Corporation furnaces and plants was 7,400,000 tons of pig iron, 9,400,000 tons of steel ingots, and 7,900,000 tons of finished steel. Its pig-iron production represented one half of the total output of the United States; its steel-rail production represented about 68 per cent; its structural steel, 60 per cent; as much if not more, of the manufacture of steel plates, sheets, bars, wire and wire rods, hoops and cotton ties; nearly the entire manufacture of tin plates, tubes, wire nails, barbed wire, and woven-wire fence; and from 85 to 90 per cent of all the bridges in the country.

³⁹ United States Steel received its charter in April of 1901. Shelby was actually not brought into the corporation until June of that year. Also brought in at that time was Rockefeller's Bessemer Steamship Company.

With the formation of the United States Steel Corporation, not only was the United States assuming its leading place in world production of steel, but it was becoming overall leader among capitalist nations as well. The formation of U.S. Steel was part and parcel of the capitalist revolution of the late nineteenth and early twentieth centuries--one of its creations and one of its makers.

The capitalist revolution was also a corporate revolution where unprecedented concentration, and with it control over production, was achieved through centralized organizational command. Such command over production was established in the progressively centralizing transformation of organizational forms from the pool to the highest form of merger of the time, the holding company. This transformation brought with it the passage from industrial control of the independently owned firm to the oligopolistic trust. These organizational solutions to problems of accumulation faced by firms were pursued in order to provide a buffer against "ruinous competition" and the inadequacy of markets to absorb surpluses.

In this chapter, we see the important role of factory closures in this development, i.e., their importance in the process through which a capitalist nation constructed its basic capacity to produce. This is contrary to the contemporary view in which factory closures are synonymous with the dismantling of basic industry. Historically, in the context of American capitalist development, what we have seen and what we will continue to see in this work is that the role of factory closures in post-Civil War industrial expansion in the United States is comparable to that of the factory closure in the post-World War II, or, more particularly, post-Viet Nam industrial decline of the 1970s.

In Bluestone and Harrison's (1982, pp. 123-124) view, factory closures are fundamentally related to the post-1945 corporate conglomeration movement brought on by diversification of firms from single and related endeavors into totally unrelated fields. This resulted in the unique pattern of factory closing described by the term deindustrialization. Factory closures are recognized as a mechanism through which the conglomerate as organizational firm type, form of capital concentration, and model of capitalist competition was created. The history of steel industry development up to 1901 supports the claim that factory closures were as crucial to the creation of horizontal and vertical mergers as ways of organizing firms, concentrating capital and competing with other firms as they are to conglomeration. Furthermore, as in the contemporary process of conglomeration, factory closures in the late nineteenth and early twentieth centuries were not merely outcomes of business failures or of the operation of blind market mechanisms but were outcomes of decisions made and definite actions taken by real human actors, within given historically created circumstances, i.e., in the process of the social construction of capitalist society (cf. Perlman 1977, p. 65, and Schweikart 1984, p. 33). Factory closures were conscious aspects of corporate policies actively pursued by firms in the process of competition and as individual capitalists took each other into account.

Overall, this examination of steel industry development around the turn of the century supports Mandel's (1968, p. 434) point that, "trusts and monopolies do not suppress capitalist competition; they merely reproduce it on a higher scale and in more acute form." Factory closures were involved in this reproduction process. The

characteristic feature of the pre-1901 steel industry was that previously competing independent steel companies were brought together as a buffer to destructive competition and price fluctuations into groups of competing trusts. In turn, the post-1901 steel industry brought these previously competing independent trusts together in the form of the United States Steel Corporation threatened competitively as they were by the possibilities of each other's vertical integration. The next chapter will cover the period of steel industry development in which other domestic corporations rose to challenge the dominance of U.S. Steel and the response of the Corporation within this new climate of competition.

An analysis of the formation of the steel industry in the late nineteenth and early twentieth centuries raises important issues concerning how we currently think about deindustrialization. As stated in chapter 2, current discussions of the deindustrialization issue are limited in historical scope. Rather than approaching deindustrialization as an historical question, it is framed as a spatial, geographic, or regional issue by commentators from a variety of theoretical perspectives. Examples include those analyses which debate the issue of deindustrialization in terms of the flight of capital from urban centers to suburbs in local contexts, "Frostbelt" to "Sunbelt" in the context of the United States, and North to South or First World to Third World in the global context. The factory closure in the history of steel industry development will form an important focus of the chapter to follow where attention will be paid to the role of shutdowns in the formation of the manufacturing belt of the United States. This chapter covered the formation of the great steel trusts which were

eventually consolidated into the United States Steel Corporation in 1901. The Steel Corporation and its constituent trusts, it is understood, were born of the "great merger movement" which lasted from the 1890s to the turn of the century and beyond.

CHAPTER V

STEEL AND MONOPOLY II: CENTRALIZATION, FACTORY CLOSURES, AND THE RISE OF THE MANUFACTURING BELT

Introduction

The outcome of the corporate revolution was the reproduction of capitalist competition on a higher scale. The basic unit of capitalist competition was no longer the independent firm but the corporation, a unity of firms previously in competition with each other. The corporate development of the steel industry in the years since the turn of the century represented the continuation of trends established in the late nineteenth century, namely vertical, horizontal, and spatial integration but at a higher velocity, which, in this development, accompanied a more intense level of factory closure as firms sought control over raw materials and control over markets for finished products, acquisitions of other steel producers, diversification into endeavors not directly associated with steel production, and geographic concentration of production. Each phase of corporate expansion, acquisition, and investment was accompanied by factory closures. This section covers the association between investment and disinvestment--between growth, expansion, reorganization, and factory closures--from 1901 to 1929. This will provide the basis upon which local effects of factory closures and industrialization can be discussed.

The specific emphasis of this chapter is the issue of factory closures in the domestic context, their role in industrial development, and the issue of effects of this course of industrialization on the local

level. This will be accomplished by presenting an overview of the extent of factory closures in the thirty years subsequent to the formation of the United States Steel Corporation, their relationship to the process of investment, i.e., entry into other aspects of steel production and other markets. Especially important here are developments within the United States Steel Corporation since the turn of the century and the relationship of these to development of the steel towns, both those experiencing shutdowns and those which became centers of steel production.

The substantive referent of this chapter is the tendency within current deindustrialization literature to emphasize the role of the factory closure as a spatial issue. For example, factory closures are discussed within the process of capital flight from cities to suburbs (cf. Dowd 1977, pp. 226-265, and Ashton 1984, p. 63),¹ and from communities in one region to communities in more favored regions, e.g., from "Frostbelt" or "Rustbelt" to "Sunbelt."² In this way, deindustrialization is viewed as the "'shake-out' of entire sectors of US manufacturing industry, such as steel...giving rise to what is called the 'decline' of the traditional manufacturing belt in the Northeast and the 'rise' of the

¹ Ashton (1984, pp. 63-74) describes the process of capital flight from the cities in the post-World War II period, its relocation and that of labor in suburban areas, and the development of an urban fiscal crisis and deterioration of urban services.

² Peet (1987, pp. 53-54) comments: "The terms popularly used to rationalize the relocation of United States manufacturing industry as a move from the Frostbelt to the Sunbelt (implying locational determination by natural relations of production) represent an ideological diversion from a more essential truth. Natural resources are used, and space arranged and rearranged, under the control of the social relations of production."

so-called 'Sunbelt' in the South and West" (Agnew 1987, p. 19). The result in the post-World War II period is the deterioration of cities and the abandonment and destruction of local communities.

To Bluestone and Harrison (1980, p. 103, and 1982, pp. 82-107) there is another side to this kind of development--the social costs of deindustrialization bring with them costs of reindustrialization. Block (1987, p. 128) refers to this same process as the "myth of reindustrialization," the simultaneous destruction and revitalization of a nation's industries. It is not only the communities that lose factories that suffer the social costs of economic dislocation and unemployment, but the communities where plants are built, where investments end up, that suffer the downside of development--the "boomtown syndrome," "the often destructive consequences of unplanned rapid development" (Bluestone and Harrison 1982, p. 86). The boomtown syndrome is characterized by a cluster of "symptoms" described by Bluestone and Harrison (1982, p. 91) in these terms:

The unrealized burden of boomtown expansion goes beyond that which is easily measured. Paradoxically, both the physical and emotional health consequences of boomtown developments turn out to be similar to those found in communities like Youngstown and Akron that experience acute capital loss. El Dean V. Kohrs, for example, finds that unplanned expansions, "always seem to leave in their wake grim statistics of mental depression, family disorganization, emotional change, alcoholism, delinquency, and dissipation. These boomtown crises are not new...but the social consequences are becoming clearer today, and they are being felt in more parts of the country...." A growing segment of the population in the Sunbelt now recognizes the immense social costs that accompany unplanned and anarchic hyper-investment.

To this, Feagan (1984, p. 124), commenting on Houston, adds,

[F]rom the working-class point of view, the shining buckle of the Sunbelt has its tarnished side, with its air-pollution, congestion, lack of housing, poor mass transit, and nonunionized, low-wage

jobs. Houston is indeed a transparent window through which one can look to see the details of urban growth and development in this era of late capitalism. In Houston this era is characterized not so much by Big Government as by Big Business, which takes the form of large-scale development projects and expanding industrial and commercial operations. And it is the centrifugal and centripetal effects of this large-scale development that ordinary Houstonians must bear, as their job opportunities, transportation systems, working conditions, and residential choices are limited significantly by the prior decisions of industrial development and finance capital.

For the proponents of the deindustrialization thesis, it is the "ghost town" accompanied by the "boomtown" that forms the kernel of criticism of the neoclassical "creative destruction" thesis--destruction accompanied not by rational creation but by disorganized and destructive patterns of growth (Bluestone and Harrison 1982, p. 82).

But the problems associated with hyper-investment are problems currently discussed largely with respect to post-Second World War conglomeration carried out by cash hungry corporations which close factories as they shift investments to more profitable regions and endeavors (Bluestone, Harrison, and Baker 1981, p. 14). Deindustrialization and disinvestment are equated with conglomeration (Houston 1984, p. 258). However, two things must be kept in mind. Late capitalism is capitalism all the same, and to the extent that we can call a society capitalist, we understand that it develops according to certain characteristic dynamics. In a related sense, conglomerate merger is a pattern of capital investment, corporate organization, and capitalist competition like horizontal and vertical merger. They also can be expected to share similar patterns in the dynamics of their operation and consequences. Therefore, factory closures bear the same relationship to the period of corporate development dominated by horizontal and vertical merger as they do to the current period of con-

glomeration. My basic thesis, then, is this: while current accounts concerned with domestic economic development since the Second World War emphasize the importance and impacts of factory closures in the deindustrialization process, the rise of suburbanization, and the deterioration of cities along with the rise of the Sunbelt, attention to the issue of factory closures in the historical development of the steel industry indicates that they were similarly important, with similarly disorganizing impacts in the processes of urbanization, industrialization, and the rise of the "manufacturing belt."

Steel Corporations: Investment and
Factory Closures, 1901-1929

Central to the current theory of deindustrialization is this observation summarized by Newman (1985, pp. 7-8), who states:

Corporations bent on cost cutting pulled out of the traditional centers of heavy industry, leaving a trail of destruction behind. Cities such as Detroit, Gary, Youngstown, and Philadelphia witnessed severe increases in unemployment, followed by plummeting tax revenues, cuts in city services, and in some instances by human flight, as some workers unable to make a living moved out. The growth areas of the manufacturing economy, by contrast, are the areas traditionally hostile to unionization, where average wages are low, public services meagre and where, in general, workers enjoy a much lower standard of living.

With reference to this fundamental concern of deindustrialization theory, the purpose of this chapter is to identify and discuss the role of factory closures in the process through which the very cities mentioned by Newman historically became the growth areas of the manufacturing economy in the first half of the twentieth century.

Let us briefly recall from chapter 2 the influence of the Youngstown example on current work on the issue of deindustrialization. In

1977 the Lykes Corporation, owner of Youngstown Sheet and Tube Corporation, announced the closure of the Campbell Works. And in 1980, Jones and Laughlin, which had acquired the Campbell Works, closed the Brier Hill Works, also formerly a property of Youngstown Sheet and Tube (Buss and Redburn 1983, p. 23). These events contributed to making Youngstown an example or a "microcosm" of the destructive impact of disinvestment upon communities (Logue 1985, p. 75).

Factory closures have contributed to the contemporary destruction of Youngstown. But a brief look at the history of Youngstown Sheet and Tube Company reveals that the construction of the community's manufacturing base from 1900 to 1929 was also an outcome of capital flight--of disinvestment in the form of factory closures and reinvestment or relocation of capital in Youngstown itself.

Youngstown Sheet and Tube Company was organized in 1900 for the production of wrought iron sheet and tubing. In 1901, the company bought 117 acres of land in Youngstown, a location which put it within easy reach of river transportation along the Mahoning River and on the Baltimore and Ohio and Pittsburgh and Lake Erie railroads. From 1901 to 1902, the company's Campbell Works, consisting of fifteen puddling furnaces, and bar and skelp mills for rolling tubes, were built. The company's first acquisition was the Ohio Galvanizing Company of Niles, Ohio, the facilities of which Sheet and Tube bought expressly for the purpose of moving to its Youngstown plant (Schroeder 1953, pp. 62 and 66, and Hogan 1971, pp. 628-630).

After adding to its properties those of Little Alice Furnace, Sharpsville, Pennsylvania and iron ore properties of Pitt Mining Com-

pany and Crete Mining Company, Youngstown Sheet and Tube shifted to the production of steel goods. For this purpose, it purchased Bessemer steel on the open market until its own Bessemer steel plant was completed in 1906. With these facilities, Youngstown Sheet and Tube Company passed from being solely a buyer of raw materials to a seller of raw materials, and in 1908, the company purchased the plant of Morgan Spring Company of Struthers, Ohio--a subsidiary company of U.S. Steel's American Sheet and Tinplate Company, which had been a major purchaser of raw materials from Youngstown Sheet and Tube (Hogan 1971, pp. 631-637).

Following this acquisition, Youngstown Sheet and Tube Company began to diversify. The Alice blast furnace was sold and additional blast furnace capacity added at Youngstown. Electrical conduit was added to its line of products. To carry this out, the plant of the Harvey Manufacturing Company of Harvey, Illinois, including its galvanizing machinery, was purchased, dismantled, and moved to Sheet and Tube's recently acquired facilities at Struthers, Ohio. Youngstown Sheet and Tube then organized the Western Conduit Company as a subsidiary which it eventually transformed into a corporate department (Hogan 1971, pp. 637-639).

After shutting down and scrapping a \$2.5 million mill for rolling steel plate, Youngstown Sheet and Tube Company constructed a new plate making facility and electrified its sheet mills at Campbell Works at Youngstown in 1922 (Hogan 1971, pp. 642 and 983). The following year, Youngstown Sheet and Tube made its two most important acquisitions, those of the Brier Hill Steel Company of Youngstown and the Steel and Tube Company of America located in Chicago (Schroeder

1953, p. 66). These purchases gave the company natural resource reserves in both the Great Lakes region and in and around Youngstown, the Redstone Central Railroad, steel processing facilities, additional capacity for making conduit, pump parts, engines, and other finishing facilities. Most importantly, access was gained to markets of the middle west (Hogan 1971, pp. 983-985).

In 1924, the Youngstown Company disposed of several of its properties at Niles and Zanesville, Ohio, as a prelude to an expansion program which lasted from 1925 to 1929. This included (Hogan 1971, pp. 986-988):

- A \$7,763,562 expenditure on improvements and new construction including new blast furnaces and tin plate mills at the company's Indiana Harbor Works and addition of new seamless tube mills at the Campbell Works, all in 1925.
- In 1928, \$14 million was spent on the completion of the electrification of the Campbell Works and the building of new coke ovens in South Chicago.

Accompanying these improvements, the company disposed of properties in its Brier Hill Works and its works of the old Steel and Tube Company of Chicago. These properties included a plant at Zanesville, Ohio, and coke ovens at Mayville, Wisconsin. The latter were abandoned by Youngstown Sheet and Tube and the former were dismantled and its parts used in other of the company's plants (Hogan 1971, pp. 987-988). Besides Youngstown Sheet and Tube Corporation, other steel producers were locating operations in Youngstown. For example, United States Steel Corporation invested \$11 million in its McDonald Works at Youngstown from 1924 to 1929 as part of its

"Bar Mill Program." This meant that bar mill facilities in Pittsburgh were being replaced by those in the new location (Hogan 1971, pp. 881-882). All in all, the very forces which contributed to the decline of the Youngstown Sheet and Tube Company, and with it, the community of Youngstown itself, also contributed to rise of that manufacturing community in the first place.

Similar developments were taking place within other steel companies and within other communities during this period. Armco Steel Corporation, for example, one of the leading independent steel concerns, maintained facilities for making ingots of basic steel at Middletown, Ohio, in order to supply its steel sheet rolling mills in Cincinnati. In 1900, these rolling mills were dismantled and moved to Middletown in order to combine both operations at one location. The corporation was further induced by an offer of \$75,000 and land made by the city of Middletown to Armco for the purpose of developing steel production there (Schroeder 1953, pp. 69-70). This was followed in 1901 by a merger between Armco and Muskingum Valley Steel Company. By 1910, Middletown plant capacity was doubled as the corporation began to produce its first automobile body sheets. In 1927, Armco Steel bought Forged Steel Wheel Corporation which had plants in Butler, Pennsylvania, and Elyria, Ohio. The Butler plant was not yet completed and Armco reorganized it at the same time that operations at Elyria were stopped (Hogan 1971, pp. 616-623 and 978).

The dismantling of facilities played an important part in the diversification of Bethlehem Steel and its movement away from military to commercial steel production. Bethlehem Steel was originally established in 1886 as a producer of iron and steel products. From

the outset, Bethlehem was a specialist in production of steel for the military, centering its activities on production of armor plate and shipbuilding (Hogan 1971, pp. 537-538). Although at one time the Morgan syndicate held all of the stock of Bethlehem Steel Company, its entrenchment in military production, its eastern seaboard location, and its freedom from reliance on Great Lakes ore, with its control over Cuban and Chilean sources, kept Bethlehem out of reach of United States Steel (Ripley 1916, p. 104, and Davis 1933, pp. 176-179 and 214).

In 1904, Bethlehem Steel Company was reorganized as Bethlehem Steel Corporation, a holding company of nine subsidiary firms (Hogan 1971, pp. 539-540):

- Bethlehem Steel Company, with its plant in South Bethlehem, Pennsylvania, was primarily a producer of armor plate and munitions as well as holder of stock control of the Juragoa Iron Company which operated iron ore mines in Cuba;
- The shipbuilding and railroad car building facilities of Harlan and Hollingsworth Company of Delaware;
- Shipbuilding facilities, machine shop, and foundries of the Union Iron Works at San Francisco;
- Marine repair facilities and foundries of Samuel L. Moore and Sons at Elizabeth Port, New Jersey;
- Carteret Improvement Company, owner of unimproved real estate in Carteret, New Jersey;
- Eastern Shipbuilding Company of Groton, Connecticut;
- The shipbuilding plant of Crescent Shipyard Corporation, Elizabeth Port, New Jersey;

- The shipbuilding plant of Bath Iron Works, Bath, Maine; and,
- Hyde Windlass Company, a manufacturer of marine equipment.

Upon its reorganization, Bethlehem undertook a program of diversification aimed at bringing it away from specialization in military and ship production and into production of commercial steel. As a prelude to this program, Bethlehem sold both Bath Iron Works and the Hyde Windlass Company and dismantled its facilities at Crescent Shipyard--its property put up for sale. Following these, Bethlehem's entry into commercial steel production began with the purchase of 250 acres of land adjacent to its Bethlehem plant where construction began on blast furnaces, an open hearth steel plant, and rolling mills for the production of rails and construction steel. Also, Bethlehem built a new plant at Saucon, Pennsylvania, where the new "Bethlehem Section" was to be produced. The Bethlehem Section was an innovative structural beam rolled from one piece of steel but as effective as the riveted beams in use at the time (Hogan 1971, pp. 540-541).³

Republic Steel was engaged through the first thirty years of its existence in wholesale restructuring of its organization carried out through a program of factory closure accompanied by investments in diversified steel activities. Entering the steel game late, Republic was established as a holding company in 1899 and reorganized as Republic Iron and Steel Company, a rolling mill trust operating 36 previously independent iron and steel making, mining and processing concerns

³ The Bethlehem Section was developed by Henry Grey. Grey offered it to all of the important steel companies producing structural steel. Only Bethlehem Steel showed interest and bought the patents for its production.

located largely in central and southern states (Wendt and Kogan 1948, p. 256, and Hogan 1971, p. 558). The most important problem facing Republic was its transition from a company engaged primarily in ironmaking to a diversified and integrated steel producer. According to Schroeder (1953, p. 52), the policies of the company,

...involved consolidation of the company's scattered properties and conversion of the company from a mere collection of rolling mills with no steel making capacity to a fully integrated and cohesive basic steel company.

This transition involved the entire replacement of its rolling mill equipment and improvement of blast furnaces and raw material processing facilities as well as the dismantling and relocation of steel making facilities, a total of 24 in its first ten years of operation (Hogan 1971, pp. 569-574).

The first step in its transition to a steel producing concern was an improvements program initiated in 1900 at the Brown Bonnell plant of Republic Steel, located at Youngstown, which had been completely rebuilt and converted to steel production by 1902. These changes and those that were to follow were to some extent part of a scheme engineered by John Gates, who had bought heavily into the stock of Republic Steel and Tennessee Coal, Iron, and Railway Company (TCI)--both competitors of each other in the South--with designs to create a "southern steel empire" capable of competing on an equal footing with United States Steel which lacked influence in the southern states (Hogan 1971, p. 564; Wendt and Kogan 1948, pp. 256, 262, and 276; and Cotter 1916, p. 69). The threat to United States Steel Corporation was that TCI enjoyed advantages of location near rich ore and coal reserves--minimizing its transportation costs--

and open-hearth steel making, a process of making steel that was less expensive than the Bessemer process to which U.S.S. was at that time committed. What TCI lacked was rolling mills, and what Republic lacked was steel making facilities. By 1905, Gates had control over Republic stock and a significant block of TCI. Gates managed to reorganize the sales division of TCI by merging it with that of Republic Steel and at the same time, the executive offices of Republic Steel, were moved from Chicago to New York where they were combined with those of TCI (Wendt and Kogan 1948, pp. 271-272). On the verge of a successful merger of the two Southern steel concerns which Gates proposed would make Birmingham, Alabama, the "steel capital of the world," United States Steel through the Morgan bank acquired TCI itself in 1907 (Cotter 1916, pp. 61-70).

From 1901 until the loss of TCI to United States Steel, Republic partially or completely abandoned or dismantled the following plants (Hogan 1971, pp. 569-570):

- The Alabama Steel Works, Fort Payne, Alabama, which was completed in 1890 for open-hearth steel production and rolling were dismantled in 1901.
- The Phoenix Blast Furnace at Youngstown, Ohio, was built in 1854 and dismantled in 1901.
- The White River Works of Muncie, Indiana, completed in 1892 for production of basic steel, were dismantled in 1901.
- The Peoria Works at Avery, Illinois, in operation since 1892 for production of finished steel products, were dismantled in 1901.
- The Bessemer converters of the Springfield Works at Springfield, Illinois, in operation since 1887, were transferred to the Brown

Bonnell Works of Republic Steel Corporation at Youngstown in 1900 and its other facilities were dismantled in 1906. The Springfield Works were established in 1872 primarily as a producer of various iron products.

- The open-hearth furnace of the Sylvan Works at Moline, Illinois, built in 1898, was dismantled in 1901.
- The open-hearth steel operation of the Mitchell-Tranter Works at Covington, Kentucky, built in 1879, was dismantled in 1904.
- The Cleveland Works at Cleveland, Ohio, producer of railroad rolling stock, was dismantled in 1904.
- The New Albany Works at New Albany, Indiana, built in 1869 with a rolling mill added in 1887, was dismantled in 1904.
- The open-hearth operations of the Springfield Works, built in 1879 were dismantled in 1904.
- The open-hearth operations of the Minnesota Iron Works at Columbus Heights, Minnesota, which had been making steel since 1899, were dismantled in 1904.⁴
- The Terre Haute Works of Terre Haute, Indiana, established in 1868 for production of iron products, was dismantled in 1904.
- The Alexandria Works of Alexandria, Indiana, producing iron since 1895 was dismantled between 1904 and 1905.
- The Indiana Works, of Muncie, Indiana, producer of iron and steel bars since 1892, was dismantled in 1905.

⁴ Minnesota Iron Works also had a rolling mill which was completed in 1895. At the time that its steel making facilities were dismantled, the rolling mill was not in operation.

- The Atlantic Works at New Castle, Pennsylvania, an iron making facility established in 1838, was dismantled in 1905.
- The Wetherald Works of Franklin, Indiana, built in 1893 for production of iron, were dismantled in 1905.
- The Sharon Works at Sharon, Pennsylvania, an iron making facility established in 1850, was dismantled between 1904 and 1905.
- The Andrew Works at Niles, Ohio, in operation since 1872 for production of both iron and steel skelp, bars, and bands, had been previously removed to Haselton, Ohio, a suburb of Youngstown, between 1880 and 1881. They were finally dismantled by Republic in 1905.
- At the Mitchell-Tranter Works, facilities for making finished iron shapes, established in 1873, were dismantled in 1907.

After failing to acquire TCI, Republic initiated a program of diversification in its transition to steel production and centralization of operations especially in Ohio by improving and expanding its existing plant at Youngstown and starting new operations there. The first step in this diversification movement was the organization by "interests friendly to Republic" of Haselton Steel Tube Company of Youngstown, Ohio (Hogan 1971, p. 565).⁵ With the takeover of Haselton in 1911, Republic rebuilt the blast furnace of the steel tube concern and added

⁵ According to Hogan (1971, p. 565):

In order to build the tube works and for working capital, the new company issued \$1.5 million of notes secured by mortgages on its property owned and to be acquired [by Republic]. These were sold with the guarantee by Republic at 99.5%. Accordingly, Republic obtained an option to purchase at its convenience all the stock of the tube company at par and 6% interest less any dividend paid.

This is what Hogan means by "interests friendly to Republic."

three more.⁶ Also, Republic moved its corporate headquarters from Pittsburgh to Youngstown (Hogan 1971, pp. 569 and 571).

In 1909, Republic built a nut and bolt works at its Chicago plant and most importantly, began construction of a huge open-hearth steel making complex at Youngstown which when completed two years later had eight 60-ton open hearth furnaces and capacity to produce 30,000 tons of steel ingots and other forms of semi-finished steel per month (Hogan 1971, p. 565). These additions did not take place, however, before the company dismantled four additional properties. Foremost among these was the Minnesota Iron Works of Columbia Heights, Minnesota, in operation since 1895. This company had itself been a producer of open-hearth steel in addition to finished steel products. It was dismantled in 1908 along with the following (Hogan 1971, p. 570):

- The Central Works of Brazil, Indiana, established in 1895, produced iron.
- The Marion Works of Marion, Indiana, in operation since 1893, produced a variety of steel goods.
- The Westerman Works, also of Marion, Indiana, established in 1891, produced iron.

These closures preceded Republic's further diversification of products and concentration of production in and around Youngstown. Further additions were made to the the Brown Bonnell plant; the open-hearth steel plant at Youngstown was expanded in 1913, 1915, and 1918; in 1913, Republic expanded its coke oven capacity at Youngstown; and,

⁶ A fourth blast furnace was added to the Haselton property in 1917.

in 1919, the Bessemer Coal and Coke Company and DeForest Sheet and Tinplate Company of Niles, Ohio, were acquired. In this expansion, Republic nearly doubled its basic and finished steel making capacity (Hogan 1971, p. 574).

It is apparent from these changes which took place within the Youngstown Sheet and Tube Company, Bethlehem Steel Corporation, and Republic Steel Corporation that in the first twenty years of the twentieth century factory closures were essential to the process through which capital became concentrated in local areas. The flight of capital from scattered areas and its concentration in places like Youngstown, Ohio, was as important to the growth of that city as a steel manufacturing center as it was at a later time to its decline as such. This suggests, historically, the importance of factory closures to the general process of capital concentration and urbanization. This is the focus of the next section, where special attention will be paid to changes taking place within the United States Steel Corporation, especially the shift of steel production from Pittsburgh to Chicago, Illinois and Gary, Indiana, the corporation's role in the building of steel cities, and the role of factory closures in this development.

United States Steel Corporation, 1901-1929:
Factory Closures and Urbanization in the Steel Republic

Several important locational changes had been taking place in American industry in general and within the steel industry in particular in the last years of the nineteenth century and the first decades of the twentieth. It is in relation to these changes at both the regional and urban level that the development of the United States Steel

Corporation can be considered. Regionally, the center of gravity of the American economy was shifting westward. In the steel industry, this shift was represented by the decreasing importance of Pittsburgh as the steel producing center of the nation and the rise of rival centers, especially in the Great Lakes region. For example, Pennsylvania, which accounted for about 45 percent of the nation's employment in steel, accounted for only 37 percent in 1929. At the same time that Pennsylvania's share was in decline there were parallel rises in those of the Calumet--including Indiana--region, Youngstown, and Michigan (Davis 1933, p. 133).

At its formation, United States Steel Corporation had facilities spread across three regional centers. These included eastern Ohio, especially Youngstown where both the Ohio Works and McDonald Works were located,⁷ and the Chicago area where the companies of Federal Steel were located. The most important center of U.S.S. was the Pittsburgh area where it was most heavily concentrated.⁸ Seven of the firm's constituent companies were located there--Carnegie Steel, American Steel Hoop, American Steel and Wire, American Tin Plate, American Sheet Steel, American Bridge, and National Tube (Hogan 1971, p. 484).

The rise of Pittsburgh as a steel center in the late nineteenth century is explainable in part by the importance of Connelsville coke

⁷ In Ohio were also located most of the facilities of the Shelby Seamless Steel Tube Company.

⁸ The "core" of United States Steel Corporation was Carnegie Steel which was located principally in and around Pittsburgh (Davis 1933, p. 135).

and Great Lakes ore which replaced charcoal in iron production and which were particularly suitable for the Bessemer steel process (Davis 1933, p. 135). But the Pittsburgh district had been steadily declining in importance since the late 1800s. Largely, this can be related to the relative distance of Pittsburgh to expanding western markets which were served less expensively from places like Chicago as "steel buyers --the railroads, agricultural machinery companies, and construction firms--were moving westward with the population" (Markusen 1985, p. 78).⁹ Markusen (1985, p. 79) comments:

...Pittsburgh had lost its magnetism as the center of an agglomerative steel industry. Pittsburgh's location was relatively poor with respect to markets, and as coal mining activity shifted to the southwest down the Appalachians and the significance of

⁹ In response to this situation, United States Steel Corporation, the industry's leader, instituted the "Pittsburgh Plus" pricing system in the early twentieth century--a system which remained in practice until about 1921. Under the Pittsburgh Plus system the delivered price of particular steel goods was calculated on the basis of freight rates from Pittsburgh regardless of the real proximity of a mill to a market (United States Steel Corporation 1940, pp. 98-101). This system of steel pricing "enabled a Pittsburgh mill, or any nearby producer, as in the upper Ohio or the Valleys, to offer equal competition with a producer anywhere in the United States in terms of delivered price" (Warren 1973, p. 197). Pittsburgh Plus was essentially a system of internal protectionism which "protected the initial advantage of Pittsburgh plants by eliminating any market advantage that decentralized locations could realize from their proximity to distant markets" (Markusen 1985, p. 79). This system was followed with some variability by the rivals of the Steel Corporation. To many, adherence to this pricing system offered profit advantages realized from the collection of "phantom freight" (Warren 1973, p. 199). On the other hand, when it looked as if Republic Steel and TCI would merge, Gates's corporation, interested in underselling U.S. Steel, ignored the price agreement (Wendt and Kogan 1948, p. 279). In fact, after TCI was acquired by U.S.S. and that corporation was able to expand its position in the Calumet area, Pittsburgh Plus became less necessary. After 1907, steel corporations found "co-operation paid better than cut-throat competition" and Pittsburgh Plus was gradually replaced by price leadership of United States Steel (Warren 1973, p. 197).

input costs was diminished by large gains in productivity, Pittsburgh's growth rate slowed. Pittsburgh's share of output peaked in the year 1900; the last major new mill to be constructed in Pittsburgh went up in 1911.

To this must be added the transition from the importance of Bessemer steel to the open-hearth process, which was less dependent upon high grade iron ore,¹⁰ could make use of scrap as part of its input, made larger outputs in shorter intervals possible, and required less labor. Open-hearth steel was on the rise in the developing steel centers of the country. While United States Steel accounted for 55 percent of the nation's open hearth steel capacity, very little of this was located in Pittsburgh, in fact, open-hearth capacity was not added to the Edgar Thompson Works until 1915 (Hogan 1971, pp. 463 and 516).

In addition to the rise of western markets and the declining importance of Pittsburgh, of equal importance was competition from the South. A southern steel industry was built during the Civil War centered around Birmingham, Alabama--"the Pittsburgh of the South".¹¹ Nearly destroyed during the Civil War, it was rebuilt during Reconstruction with capital invested by northern industrialists and served "a spatially distinct market" (Markusen 1985, p. 78). The advantage of southern steel production rested in low cost which obtained by virtue of the fact that raw material in the Birmingham area was readily available within a ten-mile radius of steel mills. This made transportation costs practically negligible (Hogan 1971, p. 500).

The leader of the Southern steel economy was TCI, and the

¹⁰ The Bessemer steel process required ore with a low content of phosphorus. In this respect, the open-hearth process was more "forgiving." (Cotter 1916, p. 72).

¹¹ Cf. Beard and Beard (1960, p. 286).

impending merger between Republic Steel and this firm threatened to create, as discussed above, a "southern steel empire" on a par with United States Steel. This threat to U.S.S. was all the more imposing since the corporation was heavily concentrated in Pittsburgh, again, relatively distant from its most important markets, and increasingly distant from raw material sources (Cotter 1916, p. 71).

This southern insurrection, led by Gates, was put down by United States Steel when TCI was taken over by the Steel Corporation in 1907. TCI was a valuable prize not only because the Republic merger would make it an equal competitor, but because of its extensive holdings in raw materials and facilities and its contract with Union Pacific Railroad for 155,000 tons of steel rails at premium price (Hogan 1971, pp. 500 and 503, and Cotter 1916, p. 63). TCI passed into control of United States Steel in the midst of a banking panic in 1907.

At that time, TCI had recently been reorganized as a holding company for a number of southern steel concerns. Its stock had passed into the control of several large banking firms including the Knickerbocker Trust Company of New York, a leading financial concern of that city, and the Trust Company of America (Cotter 1916, pp. 63-64). These concerns used TCI stock as collateral on loans, and, according to Cotter (1916, p. 64):

Suffice it to say that the panic followed a period of enormous expansion and of extension of credit eventually carried to a point where business overreached itself and, in a country lacking an elastic currency system, such as the United States then was, financial stringency was bound to follow. The first rumblings of the coming storm went unheeded and it was not until late in the year that there was any realization of the desperate state of affairs. Then one big trust company closed its doors and was

followed by others. Banks stopped specie payments, stocks tumbled headlong on the exchanges of the country, industry halted, throwing thousands out of employment, and the financial hurricane swept over the country, leaving ruin in its wake and making its effects felt over the whole world.

The value of TCI stock plummeted and Knickerbocker Trust succumbed to a run. It appeared as if the Trust Company of America would suffer the same fate.

Morgan took advantage of the opportunity and offered to exchange more secure collateral on loans in exchange for control over TCI stock. Morgan and Gates sought assurances from Theodore Roosevelt that the acquisition would not bring anti-trust repercussions with it (Hogan 1971, p. 504). Roosevelt "gave satisfactory assurance...that the Federal Government would put no obstacle in the way of completion of the transaction" (Cotter 1916, p. 75).¹² With the acquisition of TCI by United States Steel, not only was the Republic-TCI merger headed off, but North and South ceased to exist as spatially distinct markets, and through United States Steel, an integrated national market was created.

¹² Following the TCI takeover by United States Steel, Roosevelt maintained that financial emergency facing the nation made the merger necessary. However, public sentiment turned against U.S.S. In response to the TCI acquisition and other monopoly practices of the corporation, Samuel Gompers led the nation in the call to break up United States Steel. After inconclusive Senate hearings which ended in 1909, the House of Representatives initiated an investigation to determine whether or not suit should be brought against the corporation for violation of the Sherman Anti-Trust Act. This congressional committee led by Augustus O. Stanley determined in 1911 that the U.S. Government should file suit, and make the case that United States Steel should be dissolved. "The subsequent trial continued past Morgan's death in 1913. Witnesses numbered 402. In 1919 the United States Supreme Court finally ruled against the government, 6 to 3." U.S.S. remained intact (Wendt and Kogan 1948, pp. 304-326).

New Growth, Urbanization, and Factory Closures: From the Wasteland, Gary, Indiana

For the first twenty years of its existence, United States Steel acquired eleven competing steel corporations. Three of these were companies which at the time had been major actors in the American steel industry. Among these were Union Steel Company in 1902 and Clairton Steel in 1904 (Schroeder 1953, p. 87, and Hogan 1971, pp. 485-488). Union Steel was at the time the second largest steel combination outside of U.S. Steel.¹³ But, given the threat of a merger with Republic, the takeover of TCI by the United States Steel Corporation represents the most important instance of external growth--the merger or acquisition of competing companies--undertaken by U.S.S. before 1920 (Schroeder 1953, pp. 79-87). This acquisition, as we saw, was a response to the changing locational pressures of the American steel industry, particularly the rise of the South. Equally important to the development of the United States Steel Corporation was the direction of internal growth, i.e., the construction or purchase of new facilities (Schroeder 1953, p. 79). This developmental trend within the Steel Corporation was also a response to locational pressures emerging within the domestic steel industry, in this case particularly the expansion of the Western market and the rise of the Calumet region of the Great Lakes area as a steel producing center of the nation, and the subsequent decline of Pittsburgh. The response of

¹³ This was a status Union Steel did not enjoy for long, having achieved it only one month prior to the takeover by itself acquiring Sharon Steel Company, Sharon Ore Company, Sharon Coke Company, Sharon Sheet Steel Company, Donora Mining Company, Republic Coke Company, River Coke Company, Sharon Tin Plate Company, and Sharon Ore and Limestone Company (Hogan 1971, p. 485).

the Corporation to these developments was concentration of production westward from Pittsburgh, the highest expression of which was the establishment of the city of Gary, Indiana. Gary would succeed Pittsburgh as the new capital of United States Steel's "steel republic." With respect to both the corporation's external and internal growth, factory closures played a significant role in the process of capital concentration geographically. By far the most significant levels of factory closures were found within U.S.S. for the first 30 years of the twentieth century. In two major waves, the United States Steel Corporation abandoned or dismantled between 1901 to 1905 and 1923 to 1929 a total of 66 plants. This section covers these events leading up and subsequent to the building of Gary, Indiana.

Urbanization is both cause and effect of the concentration of capital. In this way, the organizational concentration of capital, which takes place through such practices as corporate mergers, is accompanied by and necessitates the spatial concentration of capital expressed in the process of urban growth. For the first 30 years of the twentieth century, the process of urbanization acted as a stimulus to capital concentration. Agnew (1987, pp. 57-58) notes that nationally:

Over the years 1898-1905 more than 3,000 mergers took place. Urbanization provided a major part of the stimulus. [Because a] spectacular consequence of urban growth was the increased demand for producer goods like steel, copper, power machinery and concrete--the stuff out of which cities are built.

Ready to supply that demand was United States Steel Corporation, which controlled the majority of the nation's supply of structural steel, tin plate, sheet steel, plate steel, steel rods for reinforced concrete, and cement, a product into which the corporation diversified--a by-

product of the steel making process (Hogan 1971, p. 490, and cf. Schroeder 1953, p. 121). The Corporation produced and maintained control over the raw materials necessary for its own development and expansion.

The growth of the steel industry, however, was not merely an outcome of urbanization. Urbanization was also an outcome of the growth of the steel industry, as it had been since the nineteenth century. Walker (1950, p. 14) describes, for example, the origin of Ellwood City, Pennsylvania.

Ellwood City began as an idea in the mind of a nineteenth-century steel man, H.W. Hartman, a former partner of Andrew Carnegie. Mr. Hartman lived in Beaver Falls and is said to have exclaimed to his friends when he saw the pleasant valley of the Connoquenessing and perhaps when he realized its potential industrial strength and wealth: "This is the site for my city!" On June 1, 1889, as President of the Pittsburgh Company (a real estate holding company), he sent his manager to call on the owners of the land in the valley and make arrangements for its purchase. By May, 1890, ground for the new town site was broken. Hartman named his project Ellwood City for his friend Isaac L. Ellwood, Chicago steel man and inventor of the barbed wire fence.

In a similar way, Gary, Indiana, was built upon a strip of swamplands and sand dunes just east of Chicago by the United States Steel Corporation (cf. Philips 1968, p. 309). And in this process, closure, dismantling, and abandonment of factories played a vital role as more and more capital was concentrated in fewer and fewer locations. Steel industry development not only changed the shape of communities, transforming them into manufacturing centers, but the building of cities like Gary, Indiana, from the ground up, were part of an overall policy of corporate growth.

The Gary project was part of a general program of reorganization, relocation, and expansion carried out by U.S. Steel from the time of its formation. Between 1901 and 1905, three important developmental trends were unfolding within the corporation: organizational restructuring, investment projects, and with these the first round of plant closures within the corporation since its formation.

Organizational restructuring. Besides the acquisitions mentioned above, several important organizational changes were implemented for the purpose of consolidating the administration of the firm, reducing its staff, simplifying accounts, and saving on management cost. First, corporate entities were placed under the direction of single presidents. For example, Carnegie Steel, National Steel, and American Steel Hoop came under the direction of W.E. Corey. Bessemer and Lake Erie Railroad and Union Railroad were directed by James H. Reed. All coal and coke companies lost identity as independent entities and were consolidated with the H.C. Frick Coke Company under the direction of Thomas Lynch. In the same way, all tube production was brought together and all mining concerns of the corporation came under unified administrations. Secondly, in 1903, this development was carried a step further in a wave of "intracorporate mergers." Carnegie Steel, American Hoop Steel, and National Steel were merged under the charter of the National Tube Company and the name changed to Carnegie Steel Company. American Tin Plate and American Steel Sheet Company were merged and called American Sheet and Tin Plate. And, the facilities of Union Steel Company were distributed throughout the corporation's subsidiaries.

Thirdly, a single foreign selling agent representing all subsidiary concerns of the corporation was established in the United States Steel Products Export Company, all the stock of which was held by Federal Steel (Hogan 1971, pp. 490-491).

Investment in Expansion and Factory Closures. The reorganization of the United States Steel Corporation was accompanied by a wave of investment expenditure on internal growth between 1901 and 1905 which totaled \$106,938,891 for augmentation of existing facilities producing basic, semi-finished, and finished steel as well as for raw material mining, processing, and transportation (Hogan 1971, p. 489). This spending by the corporation reflects the movement of corporate investment west, especially into the Chicago area. Except for the addition of a new plant at Ambridge, Pennsylvania, which produced bridge and structural equipment, and the addition of blast furnaces and open hearth-steel making capacity at various sites throughout the corporation, the spending on new facilities was focused on three projects. These included the addition of fourteen 50-ton furnaces each for the South Works at Chicago and the Donora Works of the Union Steel Company; new construction at the South Chicago plant of the Illinois Steel Company; and the construction of a large cement plant located at Buffington, Indiana (Hogan 1971, p. 490).

Another aspect of the concentration of corporate development in the Chicago area was the partial and total dismantling of factories. For example, the corporation had recently acquired the facilities of the Troy Steel Company with plans to revive them--since they had been idled at the time of the purchase--under the American Steel and

Wire Company. Instead, the plant was dismantled in 1907 and its blooming mills transferred to the South Works of the Illinois Steel Company (Hogan 1971, p. 487). The most intense wave of closures came between the years 1901-1905 when a total of 33 of the corporation's plants, most of which were located in Pennsylvania, were dismantled. By subsidiary, these included: eight plants of the American Steel and Wire Company; 12 of the American Sheet and Tin Plate Company; four of American Steel Hoop; one of National Tube Company; one of Shelby Steel Tube Company; four of Carnegie Steel Company; and two of Illinois Steel Company (cf. Hogan 1971, p. 491-493).

In these developments the pattern of corporate growth characteristic of the United States Steel Corporation until 1930 had been established: shutdown of plants accompanied by geographically concentrated investment. While plants in Pennsylvania and other places were being dismantled as steel production concentrated in the Chicago area, several Chicago area plants of the Illinois Steel Company were also dismantled as their location within the city of Chicago itself left them no room for expansion. Between 1901 and 1904, the rail mill at North Chicago and Union Works were gradually dismantled and finally abandoned (Warren 1973, p. 140). For a while, expansion did take place at U.S. Steel's South Works in Chicago, but by 1905, even this operation which covered 330 acres became too small (Greer 1979, p. 55). So, following the 1901 to 1905 wave of closures, construction on the Gary Steel Works and the city of Gary was begun in 1905 with the purchase of 7,500 acres of land on the Indiana-Illinois border, outside of the city of Chicago, on the swamp and sand dunes facing Lake Michigan. United States Steel Corporation established two

new subsidiary companies, the Indiana Steel Company and the Gary Land Company to carry out the project. In total, the project was to build a completely integrated steel mill with a capacity of over one million tons of basic steel per year as well as a city to support it. The city was incorporated in 1906, steel production began in 1909, and by 1911 the Gary Works was capable of producing 2.16 million tons of steel (Greer 1979, pp. 55-68; Warren 1973, p. 143; Hogan 1971, p. 505; Phillips 1968, pp. 309-310; and Cotter 1916, p. 146).

Besides construction of the Gary Tube Works, United States Steel made some other important investments up to 1930. Some of these include (Hogan 1971, pp. 509-524 and 891-892):

- In 1906, U.S.S. organized the Universal Portland Cement Company and began construction of two new cement plants near Pittsburgh and Buffington, Indiana.
- Along the pattern of the building of Gary, United States Steel, on a more moderate scale, began construction of a steel mill and community "from the ground up" at Duluth, Minnesota, in 1910. This project was organized under the Minnesota Steel Company, a wholly owned subsidiary of U.S.S. To this construction new ore docks and a cement plant were added between 1911 and 1915. And in 1920, \$8.5 million were invested in the diversification of Duluth operations to which were added wire and steel rod mills.
- Between 1911 and 1915, investments were made in existing facilities, including the addition of an open-hearth plant at the Edgar Thomson Works, and a bar mill at Duquesne, and a plant for smelting zinc and producing sulfuric acid at Donora.

- Expanded demand brought about by World War I resulted in several additions: the building of electric steel plants at South Chicago; addition of an armor plate departments at Homestead, Gary, South Chicago, and Fairfield Alabama; development of facilities for shipbuilding in New Jersey and Alabama; and, addition of facilities for barbed wire production at plants of the American Steel and Wire Company.
- In 1920, United States Steel acquired rich manganese and iron ore properties in Brazil in addition to the Central Railway of Brazil. These supplemented the corporation's other foreign sources of manganese, used in the steel smelting process, that it held in India and Russia. This accompanied in that year the purchase of 17 cargo ships.
- Between 1924 and 1929, \$28 million was invested in the General Expansion Program of TCI.
- Between 1926 and 1927, \$31 million was invested in the construction of a beam mill at Homestead.
- Between 1928 and 1931, \$25 million was invested in the modernization of facilities of National Tube Company.

But for the most part, the most intense growth of the corporation was taking place in the Calumet steel district, especially in South Chicago and Gary, Indiana. Of the eight major investment programs initiated by United States Steel between 1922 and 1931, four--some \$145 million worth--were given to expansion and modernization of production in the Chicago area including Gary (cf. Hogan 1971, pp. 891-892). These investments were indicative of the trend toward concentration of production at fewer locations. Between 1909 and 1915, subsidiaries of the United States Steel Corporation began locating at Gary, for example, American Sheet and Tin Plate, National Tube,

and American Bridge, in addition to a works of Universal Portland Cement Company (Warren 1973, p. 143). Gary became the center of growth for both basic steel and finished steel production. While no new plants were built in the area after 1916, the rise of Gary steel production brought with it over the next 15 years the dismantling of facilities in other areas. the equipment of many of which was relocated to Gary as well as abandonment of factories made superfluous by this largest steel complex in the world. Warren (1973, p. 143) comments:

In the agglomeration of all these operations Gary was the very antithesis of the scatter of Steel Corporation operations in the Pittsburgh area. Eventually other U.S. Steel Chicago plants, except the South Works, ceased to operate in the primary lines of iron and steel-making. Bay View Works, Milwaukee, closed in 1928; Joliet, although it retained its mills and coke ovens, was abandoned as an iron and steel-making plant in 1932.

In addition to these mentioned by Warren, between 1923 and 1930 United States Steel abandoned or dismantled more than 30 of its plants. The highest concentration of plant loss was from Pennsylvania, accounting for about half. Most of this loss was from Pittsburgh itself, which lost 11 plants during the period (cf. Hogan 1971, pp. 892-893).

The majority of plants abandoned or dismantled were properties of Carnegie Steel Company, which lost 14. American Steel and Wire Company closed 11, and the rest were fairly evenly distributed between American Bridge Company, National Tube Company, and TCI. In 1916, Illinois Steel Company absorbed completely the Indiana Steel Company and with it administration of the Gary Steel Works. In 1935, Carnegie Steel Company lost its identity as an independent subsidiary of United States Steel as it was merged with Illinois Steel and its name changed to Carnegie-Illinois Steel Company (Hogan 1971, pp.

528 and 1203). This not only brought the steel mills of Chicago, Pittsburgh, and Youngstown under a single administration, it also, perhaps, symbolized the decline in importance to the nation's steel industry of Pittsburgh.

Boomtown and Bust-town: Planned Decline, Unplanned Growth, Community Development at the Turn of the Century

As this discussion of steel industry development from 1901 to 1930 shows, the concentration of capital in manufacturing cities involved a process similar to that described in current literature on deindustrialization. Specifically, this process involves a shift of capital location from one spatial context to another, e.g., between regions or between "outlying" areas and cities. This process of disinvestment and reinvestment is empirically expressed in the event of the factory closure in one place along with the concomitant rise of production elsewhere. Such was the case in the history of Youngstown and especially in the development of Gary, Indiana.

To Bluestone and Harrison (1982) and to others, Feagin (1984) for example, central to deindustrialization theory is the antithesis between boomtowns and bust-towns--between the destinations of capital flight and the points from which capital departs. What unites them is the socially destructive aspects of each--of the destruction of local economic bases and of unrestrained economic growth in the local context. Bluestone and Harrison (1982, p. 86) state their position:

Indeed the economic juices of the nation seem to be flowing swiftly to areas like Houston, and millions of families are following the flow. Youngstown's loss seems to be Houston's gain, so that on average the nation prospers. But does it? A closer look at America's new boomtowns suggest that all is not well there

either. The movement of capital imposes enormous social costs on the "winners" just as it does on the "losers."

While Bluestone and Harrison argue that this dynamic is characteristic of the current dismantling of the nation's basic capacity to produce, a similar dynamic can be identified in the period under discussion in this work--the period of massive industrialization, of the creation of the nation's basic capacity to produce, and the rise of the manufacturing belt (later the "Rust Belt") of the United States. In other words, from 1901 to 1930, the economic juices of the nation were flowing to places like Gary, Indiana, through basically the same process by which they apparently "dried up" some fifty years later. This dynamic can be illustrated in the parallel development of communities experiencing factory closures at the time of massive capital concentration and urbanization of the area in and around Gary, Indiana.

The Rise and Fall of Greenville, Pennsylvania, and the Shelby Seamless Steel Tube Company: U.S. Steel and the Shutdown of Factory C

The history of Shelby Seamless Steel Tube Company following its acquisition by United States Steel is a litany of closed plants. Shortly after the merger between 1901 and 1904, for example, U.S. Steel closed Shelby's Factory M, the Hartford Works; Factory N, its Albany Works; and Factory D, the Toledo Works (Boore 1951, pp. 81, 123, and 137).

In 1903 experiments carried out at Shelby's Greenville, Pennsylvania, plant, Factory C, and at Factory A in Shelby, Ohio, resulted in the discovery of the automatic rolling process--a new method of making seamless steel boiler tubes at greatly reduced cost.¹⁴ U.S.

¹⁴ The technical aspects of this continuous mill process is described in detail by Boore (1951, p. 79), basically, it meant that seamless steel

Steel Corporation then undertook the expansion of its seamless tube production since the method developed at Greenville could replace National Tube's old method of producing lap welded, that is, seamed boiler tube. The expansion program was carried out between 1906 and 1907 and began with the dismantling of one of the bar mills at Shelby Factory C. This same mill was rebuilt and put into operation at the plant of National Tube Company located at Ellwood City, Ohio (Boore 1951, pp. 79-83).

Factory B at Ellwood City, Pennsylvania, was also involved in experiments to find a cheaper way to produce tubing. However, with the adoption of the automatic process, the so-called "continuous mill" developed there was dismantled. Following the dismantling of this mill, Factory B had a new building added to it. This building was itself dismantled at the Toledo facility, Factory D and reconstructed at the new site (Boore 1951, p. 117).

When Shelby Steel Tube Company was completely subsumed under the organization of National Tube Company, Factory B was operated by the latter. Factory B, the old Ellwood Weldless Tube Company, was given the designation of "Ellwood City, Plant B" to distinguish it from the old National concern in the same city, which received the designation of "Ellwood City, Plant A." In 1923, Plant B was abandoned by National Tube, the equipment and buildings were dismantled, and in 1924, the property was sold to the Pittsburgh and Lake Erie Railroad (Boore 1951, pp. 117-118). These developments

tube could be produced at greater lengths and with fewer interruptions than previously possible.

took place in conjunction with the development of steel tube production by National Tube at Gary, Indiana.¹⁵

The year 1908 was important in Shelby's and U.S. Steel's history, at least in the area of seamless steel tube production. It was then that Shelby Steel Company lost all identity and was absorbed finally and completely by the Steel Corporation, with all steel tube operations and production placed under control of National Tube. The final important event of 1908, and the terminal event in the history of the Shelby Company, was the shutdown and dismantling of Factory C four years after the automatic process for producing steel tubes was developed. It was this plant which in 1903 became the first operation commercially capable of producing tubes in this way (Boore 1951, p. 122).

Shelby Factory C had its origins as the Greenville Tube Company, an interest of Lozier-Yost Company which eventually was reorganized as Shelby Seamless Steel Tube Company. The Greenville Works went into operation in 1897 after inducement funds were successfully raised by the citizens of the community of Greenville, Pennsylvania. At the time, it was common practice for firms to require grants of money or land as inducements for locating in particular communities.¹⁶ In

¹⁵ The closure of Ellwood City, Plant A would not be announced until 1947 (Walker 1950, p. 1). It is mentioned here because representatives of National Tube in announcing the closure stated that tube production was to be shifted from Ellwood City to Gary, Indiana, a move which they further described as one that "has been deferred" (Walker 1950, pp. 2-3).

¹⁶ Concerning the Greenville Tube Project and the system of inducements in general, J.G. White in Mercer County History stated, "It was one of those schemes by which some person or persons other than

this case, the final decision to locate the plant in Greenville had more to do with the level of inducements the company received than any other consideration such as the "suitability or availability of the site" (Boore 1951, p. 118).

The original price asked by the firm was forty thousand dollars and the project came to be known as the "\$40,000 whistle," referring to the cost to the town for the privilege of having the company's whistle sound in their community and expressing animosity at the unusually high amount that had to be raised by the community.¹⁷ Anxious to attract industry to the community, the Greenville Improvement Association agreed to the terms and sponsored a drive to raise the funds. Boore (1951, p. 120) cites the account of John L. Morrison, Secretary of the Greenville Improvement Association:

The bonus inducement...set was \$40,000 which was raised by superhuman efforts of the community. We committeemen met Lozier in Cleveland. Producing a map of Greenville he pointed to a "blank spot" of 14 acres and added that as additional bonus requirement. This upped our offer to \$45,000. We accepted this hard deal and the land owner reduced the \$5,000 price to \$2,500. Eventually we raised the \$42,500. The plant came. It covered most of the 14 acres but in the buildings there were wide open spaces. The night the contract was signed we ascended the hotel stairway as heroes and came down in disgrace.

those intended by the contributors profited by the contribution" (quoted in Boore 1951, p. 119).

¹⁷ As Boore (1951, p. 119) points out, compare the \$40,000 amount to the \$15,000 inducement required by P.L. Kimberly & Co. to locate their Greenville Rolling Mills in the town shortly after the Greenville Tube Company deal was finalized.

Commenting on the fund-raising efforts of the community, Boore (1951, pp. 119-120) cites the account of the Greenville Advance Argus:

Probably no town in the country has worked more unitedly or earnestly to secure a bonus than has Greenville. Nearly every society raised or guaranteed a sum of money, the W.C.T.U. pledged a good amount, and a number of young ladies sold flowers to swell the fund, the latter realizing \$75 in one day. The ladies of the town have been behind the men in working to secure this industry, and the young girls and boys have shown a spirit that is most commendable. The minstrel show and the band concert must not be forgotten as a means to the end. In fact...everyone has done his utmost to help Greenville along.

In a little more than ten years from the minstrel show and the band concert, the plant was shut down.

The history of seamless steel tube production in Greenville is typical of Shelby history overall. As a unit in the Shelby organization, Factory C was characterized by its modern facilities, and, as previously mentioned, was one of the locations at which the automatic process for producing seamless tube was first developed. In 1898, one of the piercing mills at Greenville was dismantled and installed at Factory A. At the same time, the Greenville Works received 31 hydraulic tube drawing benches which had been dismantled and removed from other Shelby plants. In 1906, a bar mill was dismantled and rebuilt at Ellwood City, Plant B of National Tube Company. In 1907, production ceased at Greenville and in 1908 the plant was closed by U.S. Steel and dismantled. The property and empty buildings were then used by a company which built and repaired railroad cars (Boore, 1951, pp. 121-122). Boore (1951, p. 122) comments, "According to John L. Morrison, the United States Steel Corporation, although under no

legal or moral compulsion to do so, reimbursed the Greenville citizens to the extent of \$25,000."

Gary, Indiana: A Steel Boomtown at the Turn of the Century

That Gary, Indiana, was created through a process nearly identical to current discussions in literature on deindustrialization is exemplified in O'Connor's (1935, p. 322) observation that for the first thirty years of its existence, United States Steel Corporation,

closed entire plants in smaller cities to concentrate at Gary and Youngstown. For instance, Scotdale, Pa. former city of mills, became a "ghost town," kept alive thanks only to federal relief doled to 80 percent of the inhabitants.

What will be done here, though, is to determine to what extent the internal dynamics of the development of Gary, Indiana, resembles the socially disorganized development attributed to the so-called boom town described in contemporary discussions of the impact of the deindustrialization process on national development.

In the 1920s, Gary, Indiana, could literally be described as a factory city. That is, it was not merely a city where factories were located, but it exemplified an urban plan where the city itself was a factory built "in accordance with the dictates of economic necessity and advantage" (Greer 1979, p. 57). The site on which the city was built encompassed 9,000 acres covering ten miles of shore front on Lake Michigan and was two miles wide. The site was chosen for its suitability for the location of ore docks, proximity to expanding steel markets, and access to U.S. Steel's other operations within the city limits of Chicago. The city was laid out in such a way that three lines of rails, 55 miles in all extended from the mill area and connected

blast furnaces, open-hearth furnaces, and finishing mills so that, literally, iron ore could be unloaded at one end of the city and finished steel products could leave the other with a minimum of disruption in the processes (Greer 1979, pp. 56-61). On this point Warren (1973, p. 143) states, "By this means heat loss and internal haulage were both reduced....The excellence of Gary's plan and internal material flow has scarcely if ever been exceeded."

As a site for the profitable and large-scale production of steel, the urban plan of Gary, Indiana, was eminently rational. However, as a site for human living indications are that the social aspects of the city were subordinated to the needs of capital accumulation with dire results. While a great deal of planning went into the layout and arrangement of steel works, the city was itself treated as "merely a means to staff the mills" (Greer 1979, p. 58, and O'Connor 1935, p. 256). Upon the 9,000 acres on which Gary was built, only 800 acres were allocated for the city. The rest was given over to industrial development. The result was that,

The city itself was an afterthought, thrown over to Gary Land Company to be laid out in a dismal rectangular town plan. It sprang from the mind of the realtor rather than of the professional city planner (O'Connor 1935, p. 256).

The town was laid out according to a typical urban grid pattern, but it was essentially imposed upon the landscape without regard to humanly created or natural terrain features, made no provision for a definitive downtown, and conspicuously omitted the construction of a civic center which, "served the interests of the board of directors who ...clearly preferred that Gary's working class not engage in too much political activity" (Greer 1979, p. 67). In this pattern of development,

Gary is reminiscent of contemporary boomtown cities. Bluestone and Harrison (1982, p. 86) describe this pattern.

With a deliberate policy of enacting no zoning laws and doing practically no planning, Houston and other boomtown cities have been virtually overrun by the influx of capital. Growth has occurred so rapidly and haphazardly that boomtown metropolises now paradoxically exhibit many of the same urban woes that plague northern central cities. To most planners, "Houston's sprawling growth represents how not to do it. In Houston, developers can build what they want, when they want, where they want. While such laissez-faire certainly engenders boomtown vitality, it also creates boom-town problems.

But with the subordination of city development to the needs of coordinated industrial expansion, the problems of Gary were associated not with sprawling growth but with constrained development as space was jealously conserved for the addition of steel mill capacity.

Among the problems of Gary, the most socially disorganizing were associated with housing. First, Gary was overcrowded. The housing problem was compounded by the fact that not only was relatively little space given over to housing development, but expansion of the residential section of the city was restricted by a rechanneling of the Grand Calumet River so that it was situated on one side by Lake Michigan and on the other side by the river, and beyond the river, by the mills (Greer 1979, p. 60, and O'Connor 1935, p. 256). The result of this was a housing shortage described by Davis (1933, p. 72), who in quoting a 1922 report of the U.S. Children's Bureau states of Gary,

Housing shortage severe enough to hamper the passage and enforcement of regulations governing building and sanitation has existed in Gary practically from the beginning.

In a related way, the housing situation reflected the class composition and the composition of the workforce at Gary.

Typical of the steel industry at the time, the labor force was composed of a majority of unskilled and a minority of skilled laborers. Also, the wage situation in the industry was bleak. In a letter of the National Committee of the American Federation of Labor sent to Elbert Gary on the eve of the nationwide Steel Strike of 1919, it was stated:

The conditions of employment, the home life, the misery in the hovels of the steel workers is beyond description. You may not be aware that the standard of life of the average steel worker is below the pauper line, which means that charitable institutions furnish to the pauper a better home, more food, clothing, light and heat than many steel workers can bring into their lives upon the compensation received for putting forth their best efforts in the steel industry (quoted in Foster 1920, pp. 83-84).

This assessment of living conditions was borne out by an independent study undertaken by the Interchurch World Movement in 1920 to determine the causes of the strike. On wages and standard of living, the inquiry determined the following for 1919 (Interchurch World Movement 1920, p. 85, emphasis in the original):

- "The annual earnings of over one-third of all productive iron and steel workers were and had been for years, below the level set by government experts as the minimum subsistence standard for families of five."¹⁸
- "The annual earnings of 72% of all [steel] workers were, and had been for years below the level set by government experts as the minimum of comfort level for families of five."
- "Skilled steel labor is paid wages disproportionate to the earnings of the other two thirds, thus binding the skilled class to the companies and creating divisions between it and the rest of the force."

¹⁸ At the time, a family of five was considered to be of average size.

This industrywide condition was reflected in the housing situation of Gary, Indiana. In general, skilled workers were often able to afford homes, financed by mortgage money made available by Gary Land Company. Rates were generally favorable, and as Greer (1979, p. 67-69) argues, this situation was politically expedient from the point of view of the corporation. First, the availability of home ownership for skilled labor, who represented a scarcer form of labor power, tied them "into a position of dependency through...privileges afforded to the 'labor aristocracy'." This dependency operated to prevent skilled laborers lending any active political support to Gary's unskilled labor force. Juxtaposed to the four- to six-room frame housing unit were what O'Connor (1935, p. 256-257) describes as the "flimsy shacks" on which real estate speculators made a return of fifty percent and the "double dry goods boxes" of "Hunkyville" which appeared in just one year from the city's creation.¹⁹

In general, the socially disorganized development of Gary and the process which accounted for its growth--the flight of capital and its relocation--resemble the dynamics of contemporary urban development described by writers such as Bluestone and Harrison in their support of the deindustrialization thesis and their analysis of the relationship between boomtown and bust-town development.

¹⁹ Greer (1979, p. 70), comments: "The corporation made one small effort at housing its unskilled workers, but its fifty four-room wood frame houses for this purpose were quickly torn down when the laborers doubled up in order to afford the rents." Also, in comparing the situation in Gary to those of other steel areas, O'Connor (1935, p. 256) states, "The Corporation could complain that it inherited the slums along the Monongahela but Gary, Indiana, was its own creation, built on the uninhabited sand dunes."

Conclusions

Of the factory closures that occurred between 1901 and 1930, Hogan (1971, p. 491) comments:

In such a large aggregate of plants, as was assembled in the United States Steel Corporation, one might well expect to find a number of obsolete plants. One of the fortunate aspects of size is the ability to abandon and write-off these plants without harming the main structure. It resembles a pruning operation on a tree and gives the remainder great strength.

What is notable here with respect to Hogan's statement and developments within the United States Steel Corporation is, first, the similarity of this turn-of-the-century process to corporate developments in steel since the 1970s which Mueller (1982, pp. 76-77), in explaining the contemporary wave of factory closures, described as "major surgery on the substance of...companies" and as "streamlining operations" in order to eliminate "structural deficiencies."²⁰ The difference, however, between the two is that the former is taken to describe corporate developments in the period of massive national industrialization, and the latter is taken to describe a current wave of deindustrialization.

Secondly, despite the imagery of "creative destruction" that is characteristic of both, one is struck in Hogan's account with the age of many of the plants that were shut down in this process of locational change undertaken by U.S. Steel, many of them having been opened only shortly before being dismantled. This is especially true of those concerned primarily with finished steel products. Several examples stand out:

²⁰ See chapter 2.

- The Ellwood City Works at Ellwood City, Pennsylvania, which produced plates for tinning and steel sheets, was in operation since 1893 and dismantled in 1902.
- The Johnstown Works at Johnstown, Pennsylvania, which produced tinning plates, was put into operation in 1898 and dismantled in 1901.
- The Dennison Works at Dennison, Ohio, which produced tinning sheets, was put into operation in 1897 and dismantled in 1905.
- Another producer of tinning sheets, the Atlanta Works, of Atlanta, Indiana, was put into operation in 1895 and dismantled in 1902.
- The Atlanta Mill at Atlanta, Georgia, producers of steel hoops and cotton ties, was built in 1900 and dismantled in 1902.
- The Toledo Works at Toledo, Ohio, which produced semi-finished steel for tube making, was put into operation in 1896 and dismantled in 1905.

If we look at instances of factory closure such as these in comparison to current concern with factory closures in the steel industry, what we notice is that the issue of deindustrialization has been developed with reference to the closure of factories many of which had been in operation prior to or since the closure of these plants. For example, Lynd's (1982) and Buss and Redburn's (1983) accounts rely on analysis of the 1977 closures of the Campbell Works, in operation since 1901; the Brier Hill Works, in operation since 1912; and the McDonald Works, in operation since 1924. Also, Bensman and Lynch's (1987) account of factory closures in the Chicago area during the early 1980s emphasizes analysis of the shutdowns of Wisconsin Steel, a subsidiary of International Harvester, in operation

since 1902, and the South Works of North Chicago Rolling Mill, which was first put into operation in 1880. This lends support to the idea that factory closures can be historically located within a general process of investment and disinvestment which among other things was as vital to the building of the nation's industrial heartland at the turn of the century as to its dismantling in the contemporary period. Also, with particular reference to the case of Gary, Indiana, factory closures were as important to urbanization and the rise of that city as a manufacturing center as they are taken to be currently in the process of the destruction of cities and communities with essentially similar socially disorganizing impacts.

CHAPTER VI

CONCLUSIONS: THE HISTORICAL FACTORY CLOSURE AND THE DEVELOPMENT OF CAPITALIST SOCIETY

Introduction

The overall concern of this dissertation has been with the issue of factory closures. In this study, the factory closure has been treated historically in order to discover its relationship to the general process of capitalist development and in so doing to re-evaluate the tendency to emphasize the importance of such events only with specific regard to the theoretically formulated process of deindustrialization which generally characterizes current literature.

At each point in this study of the American steel industry subsequent to 1865 and of factory closures in this development, I have emphasized different aspects of capitalist development. In chapter 3, the destruction of the iron industry and the transition to steel production was related to the destruction of the craft-based workforce and its conversion to an industrial one. Thus, the connection of capital destruction to interclass processes, most notably, the conflict between capital and wage-labor and the subsumption of labor to the conditions of capitalistic production, was stressed. The central conflict of this time was the extension of capitalist control over production in conflict with direct producers. Chapter 4 covered the role of the factory closure during the corporate revolution--the period of trust formation which, in the steel industry, culminated in the rise of the "royal domain" of the United States Steel Corporation. Here, the connection

between the factory closure and intraclass processes, especially those concerning capitalist competition horizontally, vertically, and spatially over market control were brought to the forefront. In the passage from industrial control of the independently owned firm to the oligopolistic trust, the importance of factory closures in the extension of capitalist control over production in conflict with each other can be observed. Chapter 5 was a discussion of the historical role of factory closures in the spatial development of American capitalism, particularly with regard to the development of the American steel industry. Here, both urban and regional development were stressed, and the importance of factory closures to the rise of manufacturing cities like Youngstown, Ohio, and Gary, Indiana, and with them the rise of the manufacturing belt were discussed in relation to the parallel issue of urban and regional development which typifies current deindustrialization literature. The historical importance of factory closures to creation of class and market conditions and to the organization of geographical relations across international borders, within the domestic context, in regions, and in localities, holds implications for the manner in which deindustrialization theory is currently formulated. The deindustrialization view is seen to contain several shortcomings, each of which is related to the narrow historical focus which characterizes this approach to economic development.

In general, the history of factory closures in the steel industry of the United States reveals their importance within the process through which conditions of capital accumulation are reproduced, especially as this process relates to the activities of capitalist firms. Just as the state more or less advances the interests of capital generally consti-

tuted, the firm advances those of capital constituted in particular. Renner (1949, *passim*) asserts, for example, that the organizational form of the firm accounts for the reproduction of capital in particular in a way analogous to the process by which the state provides for the reproduction of capital in general (Brown 1986, pp. 95-96, and cf. Poulantzas 1975; Miliband 1969; and Zald 1970, pp. 221-257). The firm, like the state, secures the interests of individual capitals which seek the maximization of profit under compulsion of competition (O'Connor 1984, p. 191). That is, the firm organizes the interests of individual capitals against each other and mirrors the way the state organizes the interests of a national capitalist class against other national capitalist classes. If, as Poulantzas (1975, p. 133) argues, the capitalist state is the purely political expression of economic relations, then the capitalist firm is the strictly economic expression of political relations, i.e., between the interests of capital and labor forces and between capitalists and each other. This idea is contained in Anthony Sampson's (1980) reference, in his corporate history of International Telephone and Telegraph, to ITT as a "sovereign state," and is tacitly recognized in Elbert Gary's reference to United States Steel Corporation as a "steel republic" (Hogan 1971, p. 470). Factory closures, along with other actions taken by capitalist firms, reproduce the conditions of capital accumulation as capitalists engaged in competition pursue the discipline of labor forces, create the conditions for the sale of labor power, attempt to discipline each other, i.e., advance their particular interests over and against those of other capitalists, create and extend markets for labor and other commodities, and create in organization of space the conditions conducive to this accumulation.

Problems Associated with the Ahistorical
Nature of the Deindustrialization Thesis

As stated at the outset of this work, Bluestone and Harrison's formulation of the theory of deindustrialization has become most influential in current sociological work on the issue. But, their focus is upon American industrial development subsequent to the Second World War. They assume, especially with respect to the issue of factory closures, that the post-World War II period is markedly different from that of the pre-World War II period. This is to say that the problem is not factory closures in themselves, but the scale and velocity of capital flight which by virtue of its intensity, especially since the 1970s, makes contemporary development problematic. This aspect of Bluestone and Harrison's work is summarized by Zipp (1984, p. 225):

Although plant closings have occurred throughout the history of industrialized capitalism, what is new in the U.S. is the frequency and scale of such closings in some regions and the resulting public awareness that they represent a threat to the economic and social well-being of those affected areas.

To Bluestone and Harrison (1982, pp. 105-106), the problem is one of degree, of quantity, not of investment but of "hyper-investment" which brings "hyper-disinvestment" and unprecedented rates of factory closures. Such developments are equated with the organizational trend among business firms to conglomerate.

Capital mobility and the form it takes in the plant shutdown is treated as an outcome of U.S. corporate growth in the three decades following the war (Zipp 1984, p. 230). Factory closures in this view are associated only with the trend toward the conglomerate diversification of capitalist firms. For example, as steel firms move out of steel production to more profitable endeavors or markets, they leave closed

steel mills in their wake. Therefore, factory closures in the era of conglomeration are considered a "newly important aspect" of capital accumulation, e.g., in the conflict between capital and labor over control of the workplace and wages, etc. (Zipp 1984, p. 226). In this way factory closures are the result of the dismantling of the nation's basic capacity to produce.

The choice of the post-1945 period as the major concern of deindustrialization theory rests upon the assertion that patterns of domestic capitalist development subsequent to 1945 are distinct from those prior to 1945--distinct because growth in the post-war period was unprecedented. This assertion led to a further assumption about factory closures in each period. While it is often recognized that factory shutdowns are nothing new to capitalist development, it is generally held that prior to 1945, plants were closed more often as a result of business failure. That is, plant shutdowns were more or less passive outcomes of the normal process of capitalist competition. In this way, there has been a fundamental change in the character of plant shutdowns (Bluestone and Harrison 1982, p. 15, and Zipp 1984, p. 229). Of the post-war era, deindustrialization, and factory closures, Bluestone and Harrison (1982, p. 15) write:

Deindustrialization does not just happen. Conscious decisions have to be made by corporate managers to move a factory from one location to another, to buy up a going concern or to dispose of one, or to shut down a facility altogether. These things never happen automatically nor are they simply a passive response to mysterious market forces. The planning behind such decisions is usually intricate, often costly, and extensive.

In the post-war period, shutdowns are outcomes of active conscious management decisions characteristic of the conglomeration process.

In the pre-war period, they are passive results of impersonal forces characteristic of the age of horizontal and vertical merger (Bluestone and Harrison 1982, p. 123). However, such corporate practices as buying the plants of competitors in order to shut them down as firms pursued the construction of horizontally and vertically integrated operations culminating in the formation of United States Steel Corporation demonstrates that closures were not just passive outcomes of market forces.

It seems that every stage of national capitalist development is accompanied by unprecedented rates of factory closure relative to preceding stages, and what Bluestone and Harrison state above concerning post-World War II factory closures was true also of the period of industrialization and steel industry formation from the end of the Civil War. If horizontal and vertical merger/integration are thought of along with conglomerate merger/diversification as "particular accumulation models" (Amin 1975, p. 357) developed at the level of the firm in the historical development of capitalism, then factory closures are seen to be not a "newly important aspect of capital accumulation," but are central in the formation of each. As such, factory closures then contribute to the historical reproduction of the conditions of capital accumulation. The history of the steel industry demonstrates that factory closures are as much a part of vertical and horizontal integration of steel firms, i.e., of their entrenchment in steel production, the building of steel producing capacity and with it of the creation and extension of the nation's basic capacity to produce, as they are of conglomeration and the dismantling of the nation's basic capacity to produce.

The focus of contemporary sociological analyses of the deindustrialization process principally upon the era of conglomeration has led to the advance of a theory with a narrow historical focus. It has neglected to take into account the way in which the very cities and regions currently undergoing deindustrialization were themselves created through a similarly conscious process in which closure of factories and movement of capital was essential. If, as Bluestone and Harrison (1982, p. 106) claim, "Growth in the Sunbelt...is surely happening at the expense of the Frostbelt," then it was also true that growth of the Calumet steel region happened at the expense of Pennsylvania, and the rise of Gary and Youngstown took place at the expense of Pittsburgh, as well as involving the movement of capital out of the city of Chicago itself. In his criticism of the "spatial reification" implied in the terms "Frostbelt" and "Sunbelt," Richard Peet (1984, 45) states,

The change in employment location during the 1970s and early 1980s can therefore be explained as a move from "Frost Belt" to "Sun Belt" only as long as "frost" and "sun" refer to the social conditions for profit-making.

Taking this one step further, the history of the steel industry implies as well that "frost" and "sun" refer to the historical conditions of profit-making and that the tendency to reify the present must be resisted.

Historically, the possibility of disinvestment exists once multi-plant operations of capitalist firms come into being. It is then that the conditions exist for taking profits from one endeavor or location and shifting them to another. It is also then that factory shutdowns, dismantling, and abandonment enter into the: (1) cycle of labor control

exemplified in the transition from iron to steel production; (2) cycle of capitalist competition exemplified in the deliberate policy of buying the plants of competitors in order to close them and shifting useable parts to other facilities as corporations extend horizontal and vertical control over production; and (3) geographic shift of capital to other locations exemplified by the shift of steel production from Britain to the United States and within the latter from east to west. The implications of factory closures within the areas of labor control and capitalist competition are fundamentally the same between the periods of domestic industrial formation and domestic industrial disformation.

Also, besides class and capitalist competition, factory closures historically play a fundamental role in the creation of the space-economy of capitalism or the organization of geographic space which assumes the form of "business climate" or what Jaffee (1986, p. 300) calls the "social structure of accumulation" which includes "elements of the external environment that impinge on the process of capital accumulation." The historical effect of the movement of capital into and out of nations, regions, and localities is the formation of the "built environment" of changing landscapes which Harvey (1982, p. 233) describes in these terms:

The built environment comprises a whole host of diverse elements: factories, dams, offices, shops, warehouses, roads, railways, docks, power stations, water supply and sewage disposal systems, schools, hospitals, parks, cinemas, restaurants--the list is endless....At any one moment the built environment appears as a palimpsest of landscapes fashioned according to the dictates of different modes of production at different stages in their historical development. Under the social relations of capitalism, however, all elements assume a commodity form....The built environment has to be regarded, then, as a geographically ordered, complex composite commodity.

I suggest, then, the importance of stressing historical continuity between stages of capitalist development rather than assuming historical disjuncture, for example, between pre- and post-World War II periods. Bluestone and Harrison (1982, p. 121) are essentially correct when they equate concentration of capital within corporations with capital mobility and therefore with factory closures. However, they are incorrect to imply the fundamental importance of the conglomerate form of corporate control only. This socio-historical analysis demonstrates as well the importance of factory closures in the process of capital becoming concentrated in horizontal and vertical mergers. In each era, factory closures share essentially the same relationship to the general process of capitalist development whether or not the thrust of that development is growth or decline of industry in the domestic context. To this extent, the post-Civil War history of the steel industry is not, as E.H. Carr (1961, pp. 23-24) would say, "a dead past, but a past which in some sense is still living in the present."

Capital Accumulation and the Progress of Social Disorganization

Swartz and Bonello (1986, p. 17) summarize the positions of McKenzie and Bluestone and Harrison on the issue of deindustrialization in the debate over whether or not corporations exploit workers and communities. McKenzie's basic argument is that disinvestment from one plant to another or one part of an enterprise to another part of the same enterprise is totally consistent with the profit maximization rule advanced by neoclassical economists. The closure of plants is an aspect of a healthy economy which is continually restructured according to the criteria of economic efficiency, the benefits of which

eventually reach all segments of society. Bluestone and Harrison's basic argument is that disinvestment and factory closure "violate the internal logic of [neo]classical economics" since consideration of profitability does not necessarily enter into decisions to close plants. In the process, immense hardships are imposed "on workers and communities where they are located." But, the emphasis upon post-1945 developments within the domestic economy carries with it the implication that the destructive aspects of capitalist development are confined to the present historical period and comprise a deviation from what is otherwise a healthy accumulation process.

Addressing the arguments of both the McKenzie school and the Bluestone and Harrison school, my position on the issue of deindustrialization as it is currently formulated can be summarized as follows. By looking at the history of the steel industry and placing factory closures in historical perspective, McKenzie's observation that disinvestment is consistent with the logic of profit maximization, characteristic of capitalist development, is correct to the extent that events such as factory closures can be located within the process whereby the conditions for accumulating capital are reproduced. It is incorrect for Bluestone and Harrison to conclude that such events are aberrations of the accumulation process on the basis of their scale and intensity in the post-World War II period. But Bluestone and Harrison are correct insofar as the operation of the accumulation process involves the imposition of hardships upon workers and communities. Again, this is characteristic of capitalist industrial history in general and not unique to the present or to the domestic situation. Social disorganization is

an aspect of the logic of capitalist development, i.e., accumulation is social disorganization.

In their criticism of the view that factory closures are part of the creative destruction process through which capitalist society advances, the most significant contribution of deindustrialization theorists has been the documentation of the destructive aspects of capitalist social development upon workers and communities, not only those communities experiencing factory closures, but so-called reindustrializing cities such as Houston. The physical, emotional, and mental health costs of deindustrialization are well documented (cf. Bluestone 1984, pp. 39-51; Nelson and Lorence 1985, pp. 71-86; Lamphere 1985, pp. 259-268; Hopper 1985, pp. 183-236; and Perucci 1986, pp. 215-228). In each case they tell a story of the greater incidence of loss of income, illnesses, stress, divorce, suicide, feelings of inadequacy and the inability of community welfare agencies to confront such problems as revenues are progressively dried up. Rayman and Bluestone (1982, p. 262), for example, also find that,

Families were not the only primary group caught up in the rippling effect of job loss events....The most common reported effect of job loss was increased distancing from friends and co-workers, feeling less and less in touch with others.

At Youngstown, following the closures of Brier Hill, Campbell Works, and McDonald Works, Buss and Redburn (1983, pp. 73-78) report higher rates of crime, mortality, and liquor sales. Bluestone and Harrison (1982, p. 64) also say of Youngstown that,

Headaches, upset stomachs and feelings of depression were the most widely-reported health problems. Aggressive feelings, anxiety, and alcohol abuse were the observed psychological consequences of the Youngstown steel closings.

It is on the basis of such findings that proponents of the deindustrialization thesis claim to be describing the destructive side of creative destruction.

The limited historical scope of the deindustrialization argument has brought with it a model not only of the community destroyed by factory closures but a model of the community prior to such events. It is an idealized community founded upon a stability which is thought to accompany employment. In the conclusion to their study of the impacts of steel mill closings in South Chicago in the early 1980s, Bensman and Lynch (1987, p. 208) state:

Economic dislocation, social trauma, and dwindling resources are combined to undermine a basic unit of American society--our communities. Ever since the Puritans founded the Massachusetts Bay Colony, the ideal of community has been central to American culture, a counterweight to this country's restless individualism....Economic stability is critical for sustained community life; thus it is that many of our most enduring communities have been linked to a major workplace. This is true not just of renowned industrial areas like Southeast Chicago or Youngstown. Even the most bucolic of small towns can often be found to shelter a granary, a meat-packing plant, or an auto parts factory.

In the development of the steel industry, this stable community or Gemeinschaft, as consistent with an ideal of community, did not exist in the period of industrial formation. The towns which are currently being destroyed by decisions to close factories made according to the criteria of capital accumulation were originally built through the very same force. The history of Gary, Indiana, is but one example of this. Steel communities were creations of capital in the first place so that communities are historically not so much a basic unit of American society as they are a vital organization of space in the process of capital

accumulation. For example, a conclusion of the Interchurch World Movement (1920, pp. 184-185, and cf. Davis 1933, p. 140) was that,

The [United States Steel] Corporation owns towns. In many localities institutions, such as churches, schools and newspapers, are dependent on it for existence.

This control of firms over local institutions, and over such things as housing, recreation, even the manner in which the town is to be built and developed, led Foster (1920, pp. 1-8 and 25) and Davis (1933, pp. 139-140) to describe steel towns as organized under a system of "industrial feudalism."

This is not to say that life in the steel towns and other industrial centers was completely devoid of communality. For example, the church, union hall, household, club, and especially the working class and ethnic neighborhood, et cetera, arose within the towns and formed the bases of working class community and culture. These Gemeinschafts grew--although often in unwitting collusion with the interests of capital--despite and often in resistance to attempts to control labor and to organize social life and living space according to the dictates of capital accumulation.

Not ironically, the impacts on life conditions of workers and families living in steel towns were not dissimilar to impacts experienced by workers currently undergoing factory closures. Various accounts point to feelings of despair, disruption of family life as a consequence of long hours of mill work, mental and physical exhaustion, low income, susceptibility to various diseases, industrial accidents, et cetera. Davis (1933, p. 72), for example, states:

The steel town is not a healthy place to live in. One of the best ways to judge the healthfulness of a town is to look at its infant

mortality rate. The steel towns having an infant mortality rate above the average outnumber the steel towns below average by two to one. Especially pestilential are Steubenville, Ohio, with a rate of 110.8 deaths under one year of age per 1,000 live births. Ashland, Ky., with a rate of 109.6, and Steelton (near Harrisburg), Pa., with a rate of 103.6, compared with a general average for all cities of 65.5.

Also, Margaret Byington (1910, p. 184) concludes in her survey of home life in Homestead that,

...the wives of many of its workers may find life merely a round of wearisome tasks in the attempt to make both ends meet; its men may be too worn by the stress of twelve hour shifts to care for their own individual development or too shorn of self-dependence to exert themselves to maintain a borough government that shall give them better living conditions. "Life, work, and happiness,--these three are bound together." The mill offers the one, subject to no effective demand by society nor commercial necessity that the work shall be done under conditions which make the other two possible.

The problematic impacts currently associated with factory closures and the destruction of steel cities are historically concomitant to the problems associated with capitalist industrialization and the impacts of the creation of those same cities. The unilateral power of steel corporations within these communities during the early 1900s has as its mirror image the unilateral power to close plants, both of which have socially destructive implications for peoples' lives.

Historically, workers and communities suffer consequences of factory location as well as factory dislocation. The problem is not one of employment versus unemployment, but of the historically created conditions of work life in general and its relation to other aspects of life. Factory closures are not currently undoing social solidarity created in a past age of industrialization, because capitalist industrialization was never conducive to solidarity. The image of the community advanced in current studies of factory closures is similar in one sense

to the problematic ethnographic image of nonindustrial or peasant societies which many anthropologists are currently criticizing. It is an image of the purely traditional and untouched society without history until confronted by modernity. "History is often treated as something that arrives, like a ship, from outside the society in question" (Ortner 1984, p. 143). In the deindustrialization literature, a community's tradition leaves with the factory.

Friedrich Engels (1845/1987, p. 40) noted as well the destructive character of capitalist industrialization and the form of urbanization it entailed in his description of Manchester and the emergence of England as the "workshop of the world." Quite contrary from the image of Gemeinschaft, Engels (1845/1987, p. 69) says of the manufacturing towns:

...the social war, the war of each against all, is here openly declared. Just as in Stirner's recent book, people regard each other as useful objects; each exploits the other, and the end of it all is, that the stronger treads the weaker under foot, and that the powerful few, the capitalists, seize everything for themselves, while to the weak many, the poor, scarcely a bare existence remains.

David Harvey (1973, pp. 121-147) gives credit to Engels for first discovering the relationship between the creation of the city as a context for capital accumulation and social misery. Factory dislocation and factory location to the extent that both enter into the process of creating conditions conducive to accumulation carry with them socially destructive costs. What Bluestone and Harrison and others describe as the social impacts of factory closures are not the outcome of deindustrialization so much as they are of the capital accumulation process in general. The current situation in places like Youngstown

and with it the socially disorganized growth of Houston with its "'73-square-mile slum'" and large permanent underclass (Bluestone and Harrison 1982, pp. 87-88) contain the contemporary and domestic consequences of that alienating process (cf. Ollman 1976, p. 137). But such consequences are not unique to the current period wherein the nation's basic capacity to produce is being dismantled. The history of factory closures in the steel industry indicates that, ultimately, they are not part of the process of creative destruction. Nor is their importance limited merely to illustrating the destructive side of creative destruction. Rather, they exist within a universe of events which demonstrate that the very process of capital accumulation is one of destructive creation.

Summary

In this dissertation, the historical case of the development of the United States steel industry from the end of the Civil War to 1929 was used in a socio-historical analysis in order to address the theory of deindustrialization by examining the role of factory closures in the formation of the nation's basic capacity to produce. Two basic conclusions are reached when the period of industrial formation is compared to that currently held to be the period of industrial disformation. First, factory closures were seen to play as important a role in the formation of industry and the centralization of capital culminating in the establishment of the United States Steel Corporation as they do contemporarily in the dismantling of the domestic steel industry. For example, factory closures and capital flight, advanced by such theorists as Bluestone and Harrison as the central mechanism of deindustrial-

ization, were crucial in the formation of the cities and regions which are currently the objects of concern within the deindustrialization literature and within the process through which the United States rose to pre-eminence as a capitalist industrial nation as well as within the process wherein that position declined in the post-war period. Secondly, it is suggested that factory closures are historically important in the reproduction and expansion of the social conditions of capital accumulation, i.e., the social relations of class and market. This is to say that factory closures are events wherein the following are created, extended, and intensified: (1) social conditions under which labor-power is bought and sold, for example, in the increasing subsumption of labor "as a factor of production whose guiding force is capital" which forms "the 'logic' of capital's self-expansion" and progressively resolves labor power, for example in its form as craft, into increasingly simplified forms (Aronowitz 1978, p. 126, and Marx 1859/1970, p. 31); (2) social conditions of capitalist competition where individual capitals compete with each other over rights to control surplus and opportunities for profit and where concentration of capital reproduces competition on a "higher scale and in more acute form" (Mandel 1968, p. 434); and (3) the organization of space in a way conducive to capital accumulation including the ordering of space at the local and regional levels in the process of urbanization and in the process where:

In pursuit of profit, all capitalists must be willing to go wherever the highest rate of profit can be obtained. In a very real sense, imperialism is simply the extra-state expression of this dynamic inherent in all forms of capital accumulation. Capital as such recognizes no such thing as foreign raw materials, foreign labor

supplies, and foreign markets, but only sees opportunities (Smith 1981, p. 229, and cf. Perlman 1977, p. 64).

In general factory closures are understood not to be the outcomes of an aberration of an otherwise healthy accumulation process specific to the current era and resulting in the dismantling of the nation's basic capacity to produce. They are, rather, in the history of capitalist development, located within the process through which corporations seek to overcome the real barriers to capitalist production imposed by capital itself (Marx 1894/1967, p. 250).

The problems of the deindustrialization thesis as currently formulated are understood to be a function of its limited historical scope. These can be added to a range of problems identified by other commentators relevant to limitations of scope in other areas. For example, di Leonardo (1985, pp. 238-243) argues that the deindustrialization concept emerged as a new discourse on the economy which focuses its attention on the "American economy alone and on its blue-collar white male workers." The outcome is that "the deindustrialization model thus signals a new economic nationalism" which falsely dichotomizes the United States and the rest of the world which really exists within an interconnected capitalist world-economy. Houston (1984, p. 259) also describes the deindustrialization thesis as limited by virtue of its nationalistic bent. Also, Harrington (1984, p. 40) states that factory closures are currently of such concern because of their effect upon America's "labor aristocracy." While I have not addressed such issues specifically in this work, it is hoped that the historical orientation of this study will contribute to shifting attention back to the process of capital accumulation, the reproduction of capitalist

society, its implications for social life; and in so doing, submerge the issue of development of any particular nation or social category of persons, not only with respect to the issue of factory closures, but regarding other substantive issues as well.

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